

University of Economics, Prague

International Business – Central European Business Realities



DIPLOMA THESIS

“Global Financial Crisis and its Impact on German Automotive Industry: a comparative study on Daimler AG, Volkswagen Group, BMW AG”

2015

Markéta Mecová

Author: Bc. Markéta Mecová

Thesis instructor: doc. Ing. Karel Brůna, Ph.D.

Year of thesis defence: 2015

Affidavit

I hereby declare that I am the sole author of this thesis entitled “Global Financial Crisis and its Impact on German Automotive Industry: a comparative study on Daimler AG, Volkswagen Group, BMW AG”. It was written by myself and no further sources or aids were used than those explicitly stated. I duly labelled all used sources within the text and enclosed in the List of Sources.

In Prague, on

.....

Acknowledgement

I hereby wish to express my appreciation and sincere gratitude to the supervisor of my thesis, doc. Ing. Karel Brůna, Ph.D., who provided me with valuable suggestions and advice.

Table of Contents

Introduction.....	4
1. Tools of Financial Statement Analysis	6
1.1. Literature Review of Financial Ratio Analysis	6
1.2. The Financial Statement Analysis Process	10
1.2.1. Users of financial statement analysis.....	10
1.2.2. The general interpretation of financial statement analysis	13
1.2.3. Advantages and limitations of financial statement analysis	13
1.3. Common Financial Analysis Techniques.....	16
1.3.1. Horizontal analysis	16
1.3.2. Vertical analysis.....	17
1.4. Ratio Analysis	18
1.4.1. The ratio classification.....	18
1.4.2. Profitability ratios	20
1.4.3. Liquidity ratios.....	23
1.4.4. Leverage ratios (capital gearing ratios)	25
1.4.5. Efficiency ratios	27
1.4.6. Market ratios	29
1.4.7. The DuPont decomposition of ROE by five components.....	30
1.5. Cash Flow Statement Analysis.....	33
1.6. Bankruptcy and Credit Scoring Models	36
1.6.1. The bankruptcy models.....	36
1.6.1.1. Beaver's univariate model.....	36
1.6.1.2. The Altman's Z-Score.....	37
1.6.1.3. The Taffler's bankruptcy model.....	38
1.6.2. The credit scoring models.....	39
1.6.2.1. The Kralicek's Quick Test	39

1.7.	Economic Value Added (EVA) as a Market Value Measurement	41
2.	The Economic Global Downturn	44
2.1.	The Causes of the Global Financial Crisis	44
2.2.	German Market during the Crisis	47
2.3.	Introduction of Concerns.....	49
2.3.1.	Daimler AG.....	49
2.3.2.	Volkswagen Group	50
2.3.3.	BMW AG.....	51
2.3.4.	Selected key economic indicators of concerns	52
3.	The Comparative Study on Daimler AG, Volkswagen Group & BMW AG	56
3.1.	Ratio Analysis	56
3.1.1.	Profitability of concerns.....	56
3.1.2.	Liquidity of concerns	62
3.1.3.	Solvency of concerns	63
3.1.4.	Efficiency of concerns	67
3.1.5.	Market ratios of concerns	69
3.1.6.	The DuPont decomposition	71
3.1.7.	Cash flow analysis of concerns.....	75
3.1.7.1.	Cash flow analysis of Daimler AG	76
3.1.7.2.	Cash flow analysis of VW Group	77
3.1.7.3.	Cash flow analysis of BMW AG	78
3.1.7.4.	Cash flow ratios.....	79
3.2.	Bankruptcy and Credit Scoring Models.....	81
3.2.1.	The Altman's Z-Score	81
3.2.2.	The Taffler' Z-Score.....	83
3.2.3.	The Kralicek's Quick Test.....	85
3.3.	Economic Value Added	89

3.3.1. EVA of Daimler AG	89
3.3.2. EVA of Volkswagen Group.....	95
3.3.3. EVA of BMW AG	99
3.3.4. EVA summary	102
Conclusion	104
List of Sources	108
List of Figures.....	113
Graphs	113
Schemes	113
Appendices.....	116

Introduction

The aim of this thesis is to conduct an in-depth financial analysis of German car manufacturers in order to assess their development from 2003. The main problem statement inclusive of the financial assessment is to conclude whether and to what extent the automotive industry reacts to global economic development in general and how it was affected by the adverse conditions of the global financial crisis. The automotive segment's evolution has been quite dynamic. Car manufacturers have been constantly facing increasing safety requirements. The industry is also highly valued by its customers as the car transportation is not truly endangered by possible substitutes such as trains, airplanes, buses etc. The industry is therefore very attractive for present manufacturers who are not much threatened by the entrance of new competitors as there are high fixed costs needed to enter this industry. All in all, the automotive segment is extremely innovative, focusing on trends as self-automated cars, the emissions' reduction, electric cars etc.

The performance of companies is analyzed with a help of financial analysis, where several complementing models such as bankruptcy and credit scoring models, the economic value added model etc. are applied. Conglomerates are analyzed from a historical perspective. Empirically, the method used which helps achieve the main problem statements relies on secondary data. Apart from consolidated financial statements of all three manufacturers, data from Bloomberg terminal and other eminent databases as well as academic books, research papers and articles were used.

My motivation to choose this topic as a master thesis was influenced by my general interest in cars. Since the automotive segment was severely hit by the global financial crisis and several manufacturers such as General Motors or Chrysler faced bankruptcy and were actually bailed out in order to survive, I was interested in the performance of German car manufacturers as Germany is home to the automotive industry. Opel was not included in this thesis on purpose, although it was quite severely hit, because it falls under the General Motors umbrella and additionally, the examined conglomerates were chosen according to the same financial reporting standards they all adopt.

The limitation of the car industry analysis represents the large number of information which is not disclosed in the consolidated financial statements. Limitations in relation with the financial

analysis itself are then mentioned in the first theoretical chapter, which is quite extensive and provide relevant knowledge on the used economic and financial models.

The second chapter identifies the causes of global financial crisis and focuses on the real estate bubble creation as well as other reasons which led to the economic downturn in 2008. The German market during the financial crisis and the introduction of examined conglomerates will also be a part of this section.

The content of the third chapter is the actual analysis of car manufacturers, which will result in findings about the conglomerates' performance before, during and after the financial crisis. My hypothesis is that although car manufacturers were significantly hit by the financial and economic crisis, the recent increasing trend in worldwide vehicle sales means that they recovered well.

1. Tools of Financial Statement Analysis

The International Accounting Standards Committee (IASC) has stated that the objective of the financial statements is to provide information about the financial position, performance and capability of an enterprise that is useful to a wide range of users in making economic decisions (Elliott, Elliott, 2011, p.22). Financial ratio analysis represents a tool which assesses the basic characteristics of economic and financial situation of an enterprise by using financial statements. The core of the analysis is the individual decomposition of financial indicators. Financial statements as well as detailed ratio analysis may be used by variety of users such as shareholders, creditors, management, auditors, employees, or governments. Authorities responsible for creating and developing accounting standards for financial reporting are The Financial Accounting Standards Board (FASB) in the US and The International Accounting Standards Board (IASB) in Europe, both founded in 1973. Prior to the establishment, there were other authorities responsible for the unification of financial statements (e.g. Committee on Accounting Procedure or Accounting Principles Board in the US, and mostly individual states' organs in Europe). Standardisation and harmonisation of financial statements is crucial for financial ratio analysis. According to EU-regulation 1606/2002, publicly traded companies with consolidated accounts compulsory use the IFRSs (International Financial Reporting Standards) since 2005. All three analysed automotive conglomerates (Daimler AG, Volkswagen Group, BMW AG) publish their consolidated financial statements under the IFRSs which is beneficial for the purposes of this thesis.

1.1. Literature Review of Financial Ratio Analysis

The first evidence about financial ratio analysis is closely connected to the industrial development in the US in the second half of the 19th century. According to Horrigan (1968), there are two reasons behind this fact. First of all, the financial sector was evolving at a rapid pace and second of all, enterprising capitalists became professional managers. Philippon (2008) points out that the financial industry (commercial banking, investment banking, private equity etc.) was around 1.5% of GDP in the U.S. in the middle of the 19th century. The first large increase in the share of the financial sector happened after 1880 as a result of both increased financing of early heavy industry and railroads. The second wave of a significant rise of the financial sector was caused by the financing of electric revolution in the US between 1918 and 1933 together with the rise of automobile as well as other industry sectors. Lastly, many

companies launched the stock market by their initial public offering (IPO) at that time. The only period when the share of financial sector was not increasing throughout the last century was during the collapse in the 1930s caused by the stock market crash in 1929, which led to the Great Depression, one of the most devastating events in American history.

The worldwide economic collapse influenced even the development of financial ratio analysis. The analysts of the “Distress Predictors” School started to question how the financial statements could predict the development rather than just evaluate the past. In the middle of the 1940s the share of the financial sector returned to its growth trend. As a consequence, at the turn of the 20th century, there was a need for several reliable ratios. The reason for a development of schools engaged in financial statement analysis was created. According to Chatfield and Vangermeersch (1996), these are the following schools in order of their appearance in the history: (1) Empirical Pragmatists; (2) Ratio Statisticians; (3) Multivariate Modelers; (4) Distress Predictors; and (5) Capital Marketers. The Empirical Pragmatists analyzed especially the short-term credit capabilities of enterprises. Furthermore, they developed a variety of ratios that could be obtained from data in financial statements. The school of Ratio Statisticians, which appeared in the early twentieth century, significantly contributed since the mid-1970 and it is known especially for their statistical finding that a group of ratios shows similar patterns. They were the first to transform financial ratios so they could be further improved with a help of statistical techniques. Multivariate Modelers focused mainly on relationships of ratios. Their major finding was that there are many trade-offs between ratios and by prioritizing one the other is harmed. In other words, all ratios cannot be maximized. As a result of the Great Depression, the school of Distress Predictors was found. They shifted the perception of financial ratios. They believed ratios had the ability to predict future events instead of just analyzing the ex-post results and they proved it by empirical studies which focused mostly on combining groups of ratios into a single index predictor such as Altman’s Z-Score Model, which will be covered later on. In the 1960s, the youngest school of Capital Marketers evolved. They examined the usefulness of financial statements and whether they can provide, explain and predict returns on securities together with their level of risk. They made use of the Capital Asset Pricing Model in their studies. In conclusion these schools exist more or less until today.

Horrigan (1968) highlights that there are two groups that caused the theoretical development in ratio indicators at the end of 19th century: (1) a group focusing on credit analysis in order to measure the ability to pay off obligations; (2) a group focusing on managerial analysis in which the profitability of an enterprise was measured. The group of credit analysts generally dominated

the evolution of financial ratio analysis. The latest global trend in the analysis development was caused by investors focusing on boosting earnings either by buying shares or by significant investing into buying other companies or joining forces with them, i.e. Mergers & Acquisitions (further as M&A). The volume of M&As has been rather low since 2008 while companies were trying to get rid of their debt which resulted in the current situation that approx. 56% of European companies have a low level of debt compared to their market capitalization (McGee, 2014). As a consequence, such situation creates a good opportunity for M&A investments. Investments into shares significantly supported the trend of valuation models. Fundamental analysis, which represents a tool of an absolute valuation model, searches for an intrinsic fundamental value of a stock and compares it with the traded market value in order to find out whether the stock is undervalued or overvalued. The relative valuation models, on the other hand, make a use of some financial variable other than cash flows and compare it to some benchmark value, e.g. Price-to-earnings ratio, Price-to-book ratio etc. Both approaches are widely used nowadays (Ferris, Petitt, 2013).

Current trends aside, the initial financial analysis around 1890s represented no in depth examination, rather an “item-by-item” analysis which looked at single financial data one after another. Subsequently, the comparative columnar analysis was created and focused on the comparison of financial variables over a time period, and finally, the analysis examining the relationship between two different items was established (Horrigan, 1968). According to Horrigan (1968) the current ratio which measures an ability to pay short-term obligations became the very first ratio which was widely used. The development and especially the use of other ratios came relatively later. As I already mentioned, the evolving financial sector in the USA contributed significantly to the development of the financial ratio analysis. It is important to mention that both the development of financial ratio analysis and the development of financial statements are coincident with the development of financial reporting.

One of the first analysts who published a study concerning financial ratios was Wall (1919). The study dealt with 7 different ratios and as it was published in a Federal Reserve bulletin which was widely read, his study is historically significant because of its impact. On the other hand, at about the same time, the DuPont Company¹ started to evaluate its operating activities with the first ratio framework, so called “triangle” ratio system developed by Donaldson Brown.

¹ E. I. Du Pont de Nemours and Company (commonly referred to as DuPont) is an American chemical company founded in July 1802. The term “DuPont Analysis” comes from the historical connection as the company started implementing financial ratios in order to evaluate its business operations.

The base of the triangle represented two ratios: profit margin ratio (profit/sales) and a capital turnover ratio (sales/total assets). The top of the triangle represented a return on investment ratio (profits/total assets). In comparison to the study of Alexander Wall, DuPont's framework was not immediately known to the public, although in the end, the value of DuPont's implementation of ratios overweighted the usage of Wall's study.

In the second half of the 20th century many academic researches claimed that the formal empirical verification of the ratios' usefulness had not been proved, even though several ratios had been already used by variety of people. The development of the "Capital Marketers" School finally brought few studies into light which complemented essentially the theoretical basis for financial ratio analysis. For the first time, studies were created by academic researches and not just by analysts. The study of Beaver (1966) showed that ratios of companies facing financial difficulties differ from companies not facing these issues. Beaver studied the relationship between the company's failure and the ratio structure. He pointed out that a firm can make predictions about the company's ability to pay its obligations as they mature at least 5 years before the failure on the basis of ratios. He used a statistical technique to come up with this conclusion, therefore it is considered as significant contribution on which upcoming studies have built. Horrigan (1966), on the other hand, used correlation and regression analysis to predict bond ratings on the basis of ratios. He found out that ratios might be used for credit-administration decision. Another significant study by Altman (1968) was conducted to assess the quality of ratio as an analytical technique. He concluded that thanks to the ratio analysis bankruptcy can be predicted up to two years before the failure.

During the 1980s, researchers as well as users started to focus more on the cash-flow statement. The study of Gombola and Ketz (1983) showed that cash-flow ratios show different perspective when evaluating the company in comparison to profitability ratios. Earlier studies rather overlooked cash flow ratios and compared them to profitability ratio outcomes. This particular study confirmed the purpose of the Statement of Changes in Financial Position (Cash Flow). Regarding the turn of the 21st century, many recent studies were made by companies such Deloitte, PwC, KPMG and others. Their focus is primarily not on ratios themselves but rather on the extent to which they are used (Bini and Dainelli, 2011).

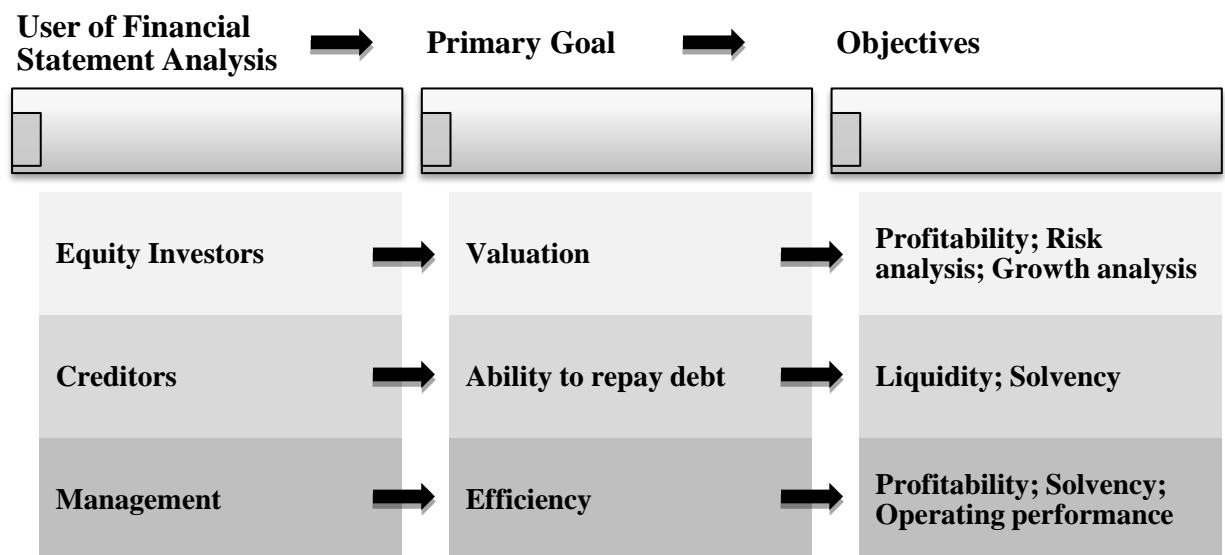
1.2. The Financial Statement Analysis Process

Financial ratio analysis assesses the overall company's health and allows its users to predict the credibility of an enterprise. Furthermore, such examination of the company's performance is mainly used as a decision-making tool. Among many features of financial statement analysis may be a recommendation, whether to invest into a company and if so, whether to invest rather in debt or equity securities. This poses a question, to whom the financial analysis benefits.

1.2.1. Users of financial statement analysis

Determining users should be a step number one in view of the fact that different users have different objectives. Temte (2005) provides a basic summary of primary users and their goals:

Scheme 1-1: Users of Financial Statements



Source: Temte A. (2005), pg. 75

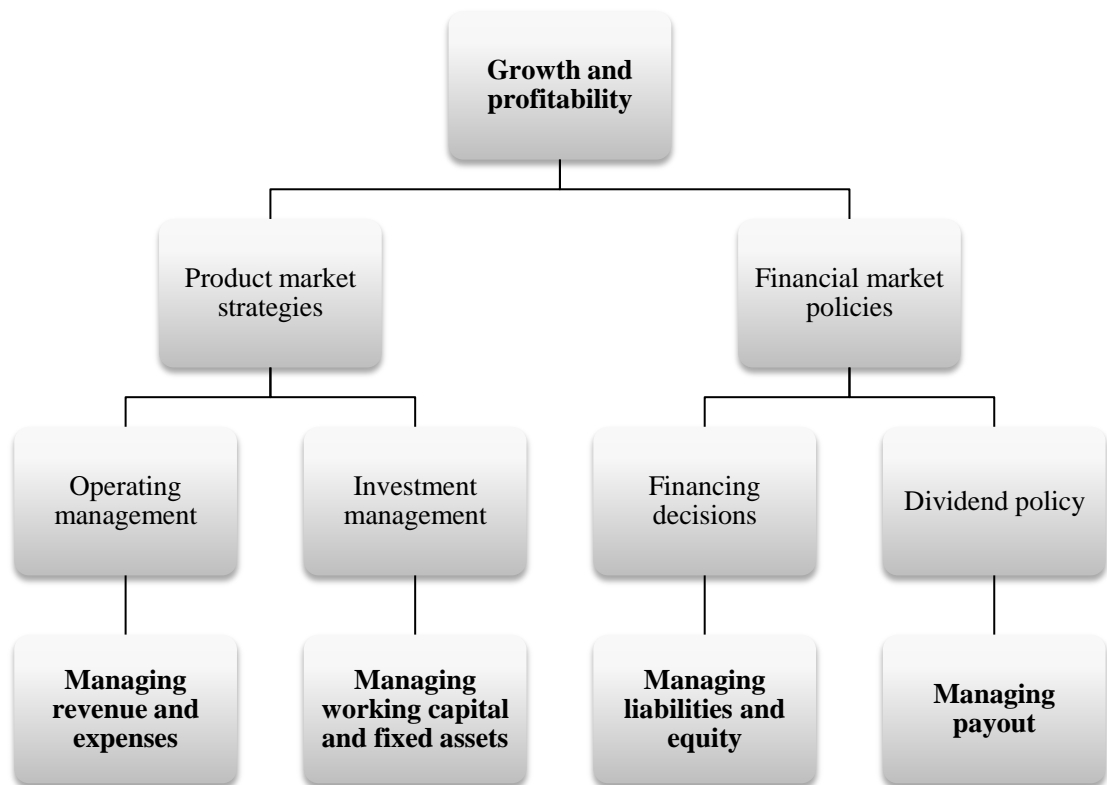
To begin with, equity investors/owners/shareholders are those investing in equity securities. They primarily call for the stock valuation, which is important for both direct and portfolio investors. Besides the risk and growth analysis, they are mostly interested in the profitability of an enterprise, which is also known as the indicator of return, and measures the profit to resources (an output to an input), particularly the ability of an enterprise to provide a reasonable profit on capital employed. In other words, they are interested whether the enterprise is generating enough return on their invested money, or if it would be more suitable to invest the money elsewhere. Notably, investors ask themselves, whether it is a safe investment, or whether it is likely for the company to become insolvent. This is one of the reasons for analyzing an enterprise, to reveal

the enterprise's profitability. These ratios are called profitability ratios and will be mentioned in more detail later on.

On the other hand, creditors such as corporate bankers, bondholders etc., seek to reveal the information regarding the company's liquidity as well as solvency. The inability of an entity to repay its debts gives cause for concern to all creditors. It is highly important to find out whether there is an adequate security in providing a loan, which corresponds to the solvency of the enterprise. Moreover, creditors need to know if a company will have enough cash to repay principal and interest when due, which correspond to the liquidity and liquidity ratios. Temte (2005) points out there are other researches specializing in credit analysis, the credit rating agencies. The two dominant credit rating agencies holding the biggest market share are Standard & Poor's together with Moody's. These agencies provide ratings for short-term as well as long-term credit and obviously, the higher the rating, the less uncertainty for creditors when providing loans. Credit rating agencies might not be however such powerful source of information when remembering the global financial crises.

Management play the role of a mediator between shareholders, employees and in a way, it can be generally perceived as the most important part of the company, implementing the strategy, ensuring growth and profitability as well as solvency and liquidity of the enterprise, communicating with employees at lower levels of the hierarchy and bringing feedback to shareholders. The operating and overall performance is crucial for management. According to Palepu, Bernard, Healy, Peek (2007), the company's growth and profitability is affected by four levers: operating management, investment management, financing strategy, and dividend policies, which all should be reflected in a well-performed ratio analysis for a managerial purposes.

Scheme 1-2: Drivers of a firm's profitability and growth



Source: Palepu, Bernard, Healy, Peek (2007), pg. 197

As shown from the scheme above, management must focus both on the overall direction of the company as well as analyze all segments in order to evaluate and make decisions. Management has a power to influence the performance of an enterprise, thus influencing ratio analysis, by choosing a specific strategy – for example the company's financing may be rather equally distributed between shareholders and creditors, or it may be financed more by debt or more by equity. This example is related to leverage ratios, e.g. debt to equity ratio would provide a clear view on the financing.

Although the summary provided by Temte (2005) covers the primary users, other users must not be omitted. Suppliers and vendors are for instance interested similarly as creditors, whether the enterprise will meet its obligations and pay for the goods, or if it will continue its business in the long-term horizon so the business relationships will not be threatened. Employees might like to know, if the business is liquid enough to be able to pay a salary when due, and profitable enough to keep their jobs. Customers concerns are mostly connected with the fact, whether the goods will be delivered in time and whether the company is reliable, not facing financial difficulties. Governments are users of financial statement analysis as well. They verify, if the tax

paid by companies is accurate. Finally, public together with media also belong among users of financial statement analysis. To sum it up, there are many categories of people with different objectives who analyze financial statements, in spite of the fact, whether these people are external or internal users. Consolidated financial statements compliant with IFRSs analyzed in this thesis are publicly available.

1.2.2. The general interpretation of financial statement analysis

The ratio itself is a mathematical tool which allows its users to compare a mass of data by revealing significant relationships between items. Ratios represent mathematical relations between one quantity and another, and they are mostly expressed in the simplest fractional form, in a percentage form or as a quotient. In general, the financial analysis uses absolute and differential indicators as well as ratios. Regarding the interpretation of ratios, it always depends on the user if he interprets a single ratio, the trend of ratios, or for instance the group of ratios such leverage ratios which all concern the long-term solvency of the enterprise. And on the top of that, the relationship between different groups of ratios must be borne in mind. As will be discussed later, there may be for example a positive correlation between the optimal level of debt and profitability because of factors such tax shield, deductible interest etc.

Therefore, the interpretation is completely dependent on the user, his expectations and perspective. The attention is given to the past financial development of the enterprise, from which the user may conclude the future obligations and trend. The complexity as well as the interpretation issues of the financial statements may be demonstrated by the fact that the IASB issued so called Practice Statement (PS) - "Management Commentary" in 2010. It is a non-binding framework which is designed to assist the management when interpreting and evaluating financial results such as financial position, financial performance and cash flows.² Such complexity of financial statements brings us to the advantages and limitations of financial ratio analysis.

1.2.3. Advantages and limitations of financial statement analysis

First of all, ratio analysis simplifies the information obtained from financial statements. As it was already said there are many users of financial statements. Irrespective of whether it is a shareholder or a creditor, financial ratio analysis works as a communication tool.

² The PS Management Commentary is not an IFRS.

In general, ratio analysis highlights profitable and unprofitable activities therefore is helpful for decision making process. Moreover, it provides assistance with financial forecasting and planning by looking at the trend of a single enterprise over the years or by comparing different companies (usually within the same industry in order to guarantee the credibility of ratios). Although it is widely thought that ratio analysis mainly analyse the past performance, it also enables to shape future plans depending whether the enterprise faces inefficiencies or whether its overall performance seems quite good. To summarize the advantages, the financial ratio analysis determines the financial position of an entity.

On the other hand, financial ratio analysis has many limitations. The analysis is valuable, if it is used only as an indicator of financial position and performance among other management techniques, and furthermore, such analysis should be used wisely and all its limitations should be known by a user in advance as the interpretation may be sometimes misleading.

Regarding the limitations, I would like to point out that ratio analysis completely depends on financial statements. Financial statements themselves should be examined with a certain degree of caution. The core objective of the IFRSs is the fact that financial statements should always present true and fair view. However, sometimes we can meet with the trade-off between two qualitative characteristics of IFRSs – reliability and relevance³. Reliability requires that the information should be faithfully presented, neutral, prudent, complete, and that the substance should be prioritized over form. In other words, reliable information is true and fair as well as accurate. Relevance requires an ability of the information to affect and help the decision-making process of an entity. At early stages, the information is less reliable due to a fact that it may be estimated or uncertain. On the other hand, relevance is fulfilled because the information is provided in time, and vice versa. Accountants put an emphasis on reliability because of the prudence characteristic – to be rather on the safe side. However, prioritizing one essential characteristic usually hurts the other, though sometimes both reliability as well as relevance can be achieved. Consequently, financial statements might sometimes badly influence financial statement analysis.

As it was already said, although the IFRSs are characterized qualitatively as well, the information obtained from financial statements remains quantitative, and ignores qualitative data, which as a consequence harms the overall conclusion from financial ratio analysis. Furthermore, the introductory subchapter concerning the literature review of ratio analysis

³ There are four qualitative characteristics of the IFRS: understandability, comparability, relevance, reliability.

showed in detail that there is a lack of sufficient theoretical background, and yet before the formal verification of ratios in the second half of the 20th century many ratios had already been used by several companies and independent analysts.

Another important limitation of ratio analysis is the comparison of results between different entities. This was already mentioned as an advantage however, such comparison goes hand in hand with the adequate knowledge of the user who may wrongly deduct final conclusions. First of all, when comparing ratios, users should focus on entities within the same industry to ensure more or less similar conditions such as the market structure, regulations etc. Second of all, users should bear in mind that companies may apply different techniques for the ratio computation, for instance the inventory ratio may be calculated as “Sales”/or “Cost of Goods Sold” divided by “Inventory”, and even financial statements may slightly differ, for example entities can use “profit before income taxes”, or “profit after taxation before minority interests”, or “net profit” for the computation of the operating cash flow through the indirect method. It is significant to point out that different items may be used even within one company and users should be aware of that when looking at the trend. For example, there are three different “profit items” used in Daimler company between 2003 and 2013 for the computation of the operating cash flow.

The last significant limitation which is worth to mention represents the change in the price level. Inflation may cause that the trend of some ratio differs but in reality the price change is to blame. Let’s assume the inventory ratio again. The ratio may get higher over the years not because of a higher physical inventory but because of a higher cost of goods sold which may be due to a higher inflation.

To sum up the issue of limitations concerning ratio analysis, as long as users are aware of all particular factors and understand how to use such indicators, ratios are a very useful instrument in analysing the company’s performance.

1.3. Common Financial Analysis Techniques

No financial analysis of a company's performance provides an exact answer. Irrespective of the tool and techniques which are used, the result depends on the individual judgment of an analyst resulting from the previous experience with the quantitative relations between specific items and their general interpretation. Although there is no official technique for the financial analysis, which may be the result of no legislation concerning the system of the financial analysis, there are generally accepted analytical methods. In this chapter, I will introduce the financial analysis techniques and its two basic tools, horizontal and vertical analysis.

First of all, I would like to mention the importance of tools complementing financial analysis such as graphics or regression analysis. Charts enable an easier communication between analysts and those for whom the graphs are intended as well as a clear comparison of the studied element. The better graphics is chosen, the better a visual understanding which may provide significant forecasting in the business trends. In the context of graphics, regression analysis should be mentioned. In spite of the fact that it is not a widely used method, we can meet with this technique. Simple regression measures the impact of one variable on another and it may be used when forecasting the company's situation and performance. I mention this technique as automotive manufacturers, respectively the whole automotive industry is definitely a cyclical industry. It is sensitive to economic cycles such as economic growth or recession. Therefore, the performance of automotive manufactures highly depends on the economic volatility which may be definitely affected by the financial crisis. Thanks to regression analysis, analysts may examine the trend of for instance the sales growth, which is one input, to GDP growth, which is another input. As data for GDP growth may include a forecast, it will be reflected in the sales growth as well. From the statistical point of view, the growth exponential function might be used as an input due to the ability to transform the function into a natural logarithm and therefore estimate the simple linear regression between the two mentioned inputs. Although this method is not extremely used, it provides quite reliable information.

Financial statement analysis then includes two generally known techniques, horizontal and vertical analysis.

1.3.1. Horizontal analysis

Horizontal analysis – sometimes referred to as trend analysis, is a technique for evaluating changes in items over a period of time. It compares financial statements, in particular line items

to a base year or a preceding year showing a trend of a particular line item. Horizontal analysis draws attention to possible changes expressed in percentage or absolutely in currency amounts, the increase or decrease that has taken place, as these changes as well as a different pace of development of specific line items reflect the company's performance. Horizontal analysis represents a useful tool, yet there are complications that may occur. Weygandt, Kimmel, Kieso (2012) point out that if a line item has no value in the base year or the preceding year, no percentage change can be computed. In a similar way, if the base year or the preceding year consists of a negative amount and the following year appears to be positive, we are not able to compute the percentage change, and vice versa. The balance sheet, income statement as well as cash flow statement may be analyzed horizontally. Users seeking for horizontal analysis in annual reports usually find figures of just two consecutive years. On the other hand, when conducting trend analysis it is rather common to have at least five-year time frame with a set base year, because then it becomes easy to compare the enterprise with its own history and make a judgement about future strategic development.

1.3.2. Vertical analysis

Vertical analysis, also called common-size analysis, enables users to express each line item as percentage to a base figure. Balance sheet base figures are generally the total assets item for asset items, the total liabilities and shareholder's equity for liabilities and equity items, and the base figure in case of income statement is total revenue. Vertical analysis is usually performed on the balance sheet and the income statement. Vertical analysis of the statement of cash flow may be seen too. Nevertheless, there are two main benefits of vertical analysis. First of all, it allows comparing relative size of each category throughout years when analyzing one single enterprise. Second of all, it enables to compare the performance of different companies of different sizes, usually taken from the same industry. Whereas horizontal analysis does not eliminate the size effect, vertical analysis does. Thanks to common-size balance sheets the financing structure of different companies may be compared as well, and on the top of it, location of invested resources may be detected, so vertical analysis provides information both on the financing and the investment policy of an enterprise (Jorissen, Britton, Alexander, 2014).

1.4. Ratio Analysis

The principal tool of financial statement analysis is represented by ratio analysis. Depending on the literature, cash flow analysis is sometimes defined within ratio analysis, or it is recognized as another principal tool equally important to ratio analysis. In this thesis, cash flow analysis together with cash flow ratios will be covered in a same chapter. All indicators of ratio analysis assist in evaluating the entity's current and past performance. Ratio analysis is typically used in three ways (Choi, Meek, 2004): first of all, it enables comparison of company's ratios across years or other fiscal periods; second of all, it allows users to compare ratios of different enterprises (very often in the same industry); and finally it enables comparison of company's ratios to an absolute benchmark (which can be generally stated or derived from a leading company in the analyzed sector). There are also two other methods pointed out by Grünwald, Holečková (2007), which must be however accompanied by data from specialized agencies: users may find out a position of the analyzed company based on a list which ranks companies according to their ratios; users may also compare ratios of the analyzed company with sectorial quantile, median, quartile etc.

Ratios consist of numerators and denominators like any other arithmetic fractions. The numerator involves factors reducing risks such for instance revenues, net profit (other types of profit e.g. profit before taxation, profit after taxes etc.), as well as liquid assets, especially current assets like inventories, trade receivables, and short-term financial assets. The denominator, on the other hand, involves factors that may pose risks to an entity, therefore sources of financing such bank loans, interest-bearing debts and other sources of external financing; also, it may contain shareholders' equity, assets, non-current assets, inventories, short-term receivables, short-term financial assets, working capital etc. We can conclude from what was said above that just a few items may appear in the numerator and denominator as well but assuming different roles. (Grünwald, Holečková, 2007).

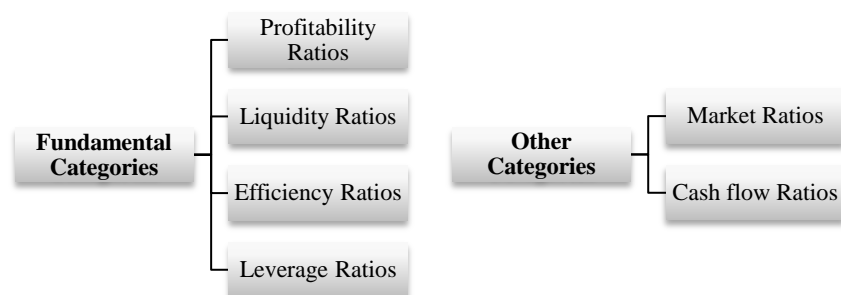
1.4.1. The ratio classification

First and foremost, there is no common framework for the standardization of ratios. Ratios may be classified under various conditions. They can be for instance classified by statement: e.g. current ratio, debt to equity ratio, equity ratio and many other are ratios classified on the basis of balance sheet; gross profit margin, interest coverage ratio and other are classified on the basis of income statement; and many are classified on the basis of both balance and income statement

such as asset turnover, inventory turnover, return on equity, return on capital employed etc. Ratios based on cash flow statement will be covered later on, for example cash flow to debt ratio could be classified on the basis of both cash flow statement as well as balance statement. Another classification may be based on the fact, whether the ratio has a parallel computation scheme or a pyramid computation scheme. In the parallel computation scheme all indicators have the same value as well as the significance. In the pyramid computation scheme users examine the decomposition of initial indicator by other indicators and try to detect which value influences the ratio to the highest degree.

Anyhow, there is more common classification. Ratios are usually categorized into two major classes, from which they create categories depending on the purpose of an individual ratio. These two major classes consist of operating ratios analyzing the performance (efficiency) and financial ratios analyzing the financial situation of an enterprise. Then, there are four categories of ratios derived from the two classes relating to the following characteristics: performance (P), efficiency (E), risk (R), and liquidity (L). Different textbooks use different titles for these four categories, for instance Ryan (2004) present the PERL acronym as it is easy to remember, otherwise we can meet with other terms: for example coverage or leverage ratios which represent risk ratios, or activity ratios or asset utilization ratios which represent the efficiency ratios. Furthermore, there is a fifth category of market/investment ratios, which is used only when the analyzed enterprise is a public limited company whose shares are publicly traded. Market ratios will be used in this thesis as all conglomerates meet conditions for this category. Cash flow ratios will be covered as well focusing on cash flow statement analysis. The scheme below provides the summary of financial ratio categories used in this thesis and illustrated on the example of BMW, Volkswagen and Daimler.

Scheme 1-3: Summary of Financial Ratios



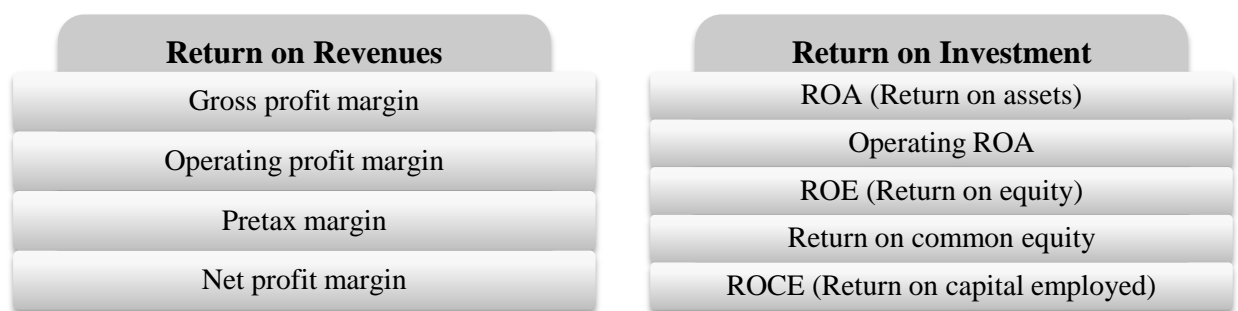
Source: own

1.4.2. Profitability ratios

Profitability ratios are very often a starting point for many analysts and other users as they reflect the ability of an enterprise to earn profits on invested capital. They provide information about the success or failure of the entrepreneurial activity as well as a company's competitive position in the market and thus form a basis for decisions of management, shareholders and creditors (Gräfer, Schneider, Gerenkamp, 2012). Basically, there are three general benefits of profitability ratios. Firstly, they assess the overall performance and efficiency. Secondly, they evaluate the ability to generate income from the invested capital, and thirdly, they point out how intensively the company's property is used (Grünwald, Holečková, 2007).

There are two options on how to deal with earnings. They can be either distributed to shareholders or reinvested. Profitability is a key indicator of especially long-term financial decisions as there are usually limited financial resources for any kind of investment, therefore it is essential to know the outcome or to be able to estimate the future outcome of a similar investment. The goal of a satisfactory return on invested capital must be complemented in connection with the financial stability and solvency of an enterprise. The reinvested earnings may therefore protect the company against short-term problems. Providing the highest possible profitability regardless of ensuring satisfying solvency as well as managing an enterprise with an excessive caution might not be the ideal way of managing the company. Management must try to assess the ideal rate between profitability and risk at all times.

Scheme 1-4: Common profitability ratios



Source: Robinson, Henry, Pirie, Broihahn, Cope (2012), pg. 336

The scheme above provides a basic overview of commonly used profitability ratios. As can be seen, profitability ratios may be divided into two categories: return on revenues category (classified on the basis of income statement) and return on investment category (classified on the

basis of both balance sheet and income statement). The last general remark: the higher ratio, the greater profitability. This applies to all profitability indicators.

Return on assets (further as **ROA**) or sometimes referred to as return on investment (ROI) or return on total capital, measures the return earned by an entity on its assets. The following equation (further only as eq.) was used in this thesis. The returns are measured before deducting interest on debt capital. Therefore it ignores the fact, whether it is financed with liabilities, debt or equity (Kislingerová, 2007). It is sometimes called “the earning power” of an enterprise, because the operating income (EBIT) is used in the numerator instead of net income:

$$(1) \quad ROA = \frac{EBIT}{(Average) \text{ total assets}} \times 100 [\%]$$

As was already indicated, some analysts use net income in the numerator. It might represent an obstacle, though. Net income represents returns to shareholders/equity holders and at the same time, total assets represent resources financed by both shareholders and creditors. Therefore, some analysts prefer to compute ROA by adding the interest back and simultaneously include the effect of taxes. Such equation takes into account a tax shield and enables to compare the returns on assets of different enterprises with different financing resources (Robinson, Henry, Pirie, Broihahn, Cope, 2012). On the other hand, net income does not have to represent an obstacle in case the analyzed enterprise has a low level of debt financing and therefore distortions in both the numerator and the denominator are not significant. Such case might be represented by an industry/an entity where there are no high capital intensive investments required for the profits generation. To sum up, the formula used in this thesis is both pre-interest and pre-tax with regard to the automotive industry that makes a use of a high level of debt financing.

Return on equity (further as **ROE**) measures the returns on capital invested by shareholders. Basically, it measures the profitability from the shareholders’ view. The eq. is computed by dividing net income by average shareholders’ equity⁴. As will be mentioned in the subchapter concerning leverage ratios, the optimal debt financing might be beneficial as it may increase the returns of a company to a certain extent. Whether the debt financing created an added value might be examined through following indicators:

⁴ Average equity or any other “average” figure mentioned in brackets in equations expresses slightly better computation of a particular ratio. It is due to a fact, that particular value is computed as: (the amount of a beginning period x2 + the amount of an ending period x1) divided by 2. The amounts in the beginning and ending period usually do not differ much. Therefore figures in this thesis are not calculated as average unless specified otherwise.

- The **equity multiplier** formula can express by how much the equity was multiplied through the use of debt. A result above 1 shows a contribution to ROE.
- The **interest margin** represents the difference between ROA and the average interest rate which is paid for the debt. If ROA is higher than the interest, in other words if profits received from the use of debt overweight the interest paid for debt, ROA increases with the debt financing.
- Lastly, the **financial leverage index**, which is the ratio of ROE to ROA, might be used as a measure for optimal debt recognition. The financial leverage index greater than 1 contributes to increasing returns. For that to happen, ROA must overweight the interest rate for received loans.

In addition to ROE, net income may be expressed before or after tax. However, Jorissen, Britton, Alexander (2014) highlight that in case of consolidated group accounts one has to make sure to exclude the profit of the minority interests in the numerator, if the minority interests are not added up to the equity of the group. The eq. for ROE is as followed:

$$(2) \quad ROE = \frac{Net\ income}{(Average)\ equity} \times 100 \text{ [\%]}$$

Return on owners' equity (ordinary shareholders' equity) would be similar to the ROE eq. but preferred dividends would have to be subtracted from net income in the numerator.

Return on capital employed (further as **ROCE**) or sometimes referred to as return on net assets, assesses the significance of the long-term investments when evaluating the capital employed. The invested capital is represented by all long-term financial resources that are available, that means long-term resources provided by both shareholders and creditors. It is calculated as operating income divided by capital employed, very often represented by net assets, which are equal to total assets minus current liabilities (Jorissen, Britton, Alexander, 2014).

$$(3) \quad ROCE = \frac{EBIT}{Total\ assets - Current\ liabilities} \times 100 \text{ [\%]}$$

Profit margin is the last mentioned profitability ratio. The three most common forms are net profit margin, gross profit margin and operating profit margin. These indicators show the ability of a company to generate a profit at a given level of sales. It provides a view of the basic cost structure of an entity, whether the entity earns profits by producing low-cost products/services, or whether the entity earns profits rather by selling products and services for a high price (Temte,

2005). There is also a link to the capital intensity of companies, whether they use high fixed costs for their production, and thus their profit margin depends on the price of the product and the size of the production and may fluctuate accordingly, or whether the company uses variable costs and its profit margin is consequently more stable. Profit margin will be further analyzed in the subchapter of DuPont decomposition of ROE.

For purposes of this thesis **net profit margin** is used. Operating profit margin is however mentioned in the second chapter of this thesis too. In both cases an analyst desires to know how much profit (in units of a given currency) the company generates on one currency unit of sales. According to Grünwald, Holečková (2007), operating profit margin has some benefits. In particular, it excludes the influence of financial costs, especially interest rates, which are not a part of operating costs. Generally, users seek to find out how much of an entity's revenues remain after paying for costs. As said already, higher the margin, the better. The equations are as followed:

$$(4) \quad \text{Net profit margin} = \frac{\text{Net income}}{\text{Sales}} \times 100 \text{ [\%]}$$

$$(5) \quad \text{Operating profit margin} = \frac{\text{EBIT}}{\text{Sales}} \times 100 \text{ [\%]}$$

1.4.3. Liquidity ratios

Analyzing the financial position goes hand in hand with the liquidity analysis. Liquidity ratios measure the ability of a company to pay its short-term liabilities when due by its liquid assets. Both indicators take a static view in the balance sheet, therefore analysts may predict how current liabilities may be paid by company's proper assets (Alexander, Nobes, 2010). Too high or too low liquidity is often linked to an organizational lifecycle in which company's expenses either exceed revenues, which is typical for the first phase of growth and causes insufficient liquidity, or in which revenues exceed expenses as the company is already profitable, generating cash with no major investments. Furthermore, it is important to mention the trade-off between maintaining a sufficient liquidity and ensuring an adequate profitability. Too high liquidity leads to the situation that a company cannot use some of its assets which would otherwise utilize for operational or investment purposes, consequently resulting in higher profitability. On the other hand, prioritizing profitability might satisfy shareholders in the interim, but the company is then exposed to a greater risk by reducing its liquidity, which may eventually cause the damage of the company's goodwill or worsen the company's credit standing.

Three common ratios are cash ratio, quick ratio and current ratio. Cash ratio is calculated as cash plus marketable securities divided by current liabilities. Cash ratio is not widely used due to its low explanatory power in comparison to other liquidity ratios. That is caused by short-term financial assets in the numerator, in particular cash and assets which can be easily and instantly transformed to cash with no financial loss. According to Grünwald, Holečková (2007), such short-term financial assets are liable to change and may be also manipulated. For the purposes of this thesis, the focus is placed upon quick ratio and current ratio with less liquid power.

Current ratio represents the most-common liquidity ratio analyzed by creditors. The higher it is, the more likely for a company to pay the short-term liabilities. Marek (2006) points out different current ratio strategies are followed by companies as shown in the table below. It might happen that the company's current ratio value is below one, which would cause negative net working capital (current assets minus current liabilities) and the company would get into a liquidity crisis (Temte, 2005). The liquidity crisis is very often unpredictable. On the other hand, an enterprise might apply safety measures such selling unproductive assets, which are not generating any value, or demanding prompt payments of receivables as well as negotiating longer periods for payments of payables, or even negotiating better and longer credit agreements. The recommended value of current ratio is usually around 1.5 (Grünwald, Holečková, 2007).

$$(6) \quad \text{Current ratio} = \frac{\text{Current assets}}{\text{Current liabilities}}$$

Scheme 1-5: Managing current ratio

Strategy	The value of current liquidity ratio
Conservative	> 2.5
Average	1.5 – 2.5
Aggressive	< 1.5

Source: Marek (2006), pg. 274

Quick ratio (also referred to as acid test ratio) is very similar to current ratio, but it excludes the least liquid assets such inventories for example. Marek (2006) shows possible strategies related to quick ratio and according to Grünwald, Holečková (2007), the recommended value of quick ratio is around 1:

$$(7) \quad \text{Quick ratio} = \frac{\text{Current assets} - \text{Inventory}}{\text{Current liabilities}}$$

Scheme 1-6: Managing quick ratio

Strategy	The value of current liquidity ratio
Conservative	> 1.5
Average	$1 - 1.5$
Aggressive	< 1

Source: Marek (2006), pg. 283

When discussing short-term liquidity, it is worth mentioning the obstacles that relate to current ratio. The numerator of current ratio also consists of an inventory, which belongs to current assets. The inventory is very specific for any company as one enterprise may have a large amount of inventory in comparison to other company. The amount of inventory depends on a used technology as well as a material intensity. Therefore analysts like to use net working capital when assessing the liquidity.

Net working capital refers to current assets minus current liabilities instead of current assets divided by current liabilities as current ratio does. The term working capital is often confused with net working capital and refers only to inventory, receivables and financial assets. Net working capital is a source of long-term assets used for financial coverage of current assets. If the value of net working capital is positive, the company has so called financial cushion (Temte, 2005).

1.4.4. Leverage ratios (capital gearing ratios)

Leverage ratios, also called solvency ratios or coverage ratios, show whether the financial risk of debt from the perspective of long-term obligations, for example interest and principal payments could negatively influence the entity and to what extent the capital structure depends on external financing as a whole.

In general, debt might be beneficial as well as threatening and solvency ratios show the ability of an enterprise to fulfill such long-term debt obligations. In case there is a high financial stability and a low insolvency as well as credit risk, it can be helpful for management to persuade its existing shareholders to invest more money into business or it can be helpful in obtaining a credit together with a favorable credit policy. On the other hand, debt financing is typically cheaper than equity. Debt financing enables the usage of the tax shield and financial leverage, which consequently reduces the cost of operations. The advantage of tax shield applies to most countries because the interest on debt is usually tax deductible unlike paid out dividends.

Robinson, Henry, Pirie, Broihahn, Cope (2012) amend the theory that the financial leverage impacts the earnings before taxes, which directly flows to shareholders. And that is because of the assumption that interests are fixed financial costs and that a percent change in EBIT (earnings before interest and taxes/operating income) causes a greater percent change in EBT (earnings before taxes).

However, higher the debt obligations, the more costly it might become when facing financial distress and the less credit worthiness the company has. Therefore, the overall capital structure of a company plays an important role. Palepu, Bernard, Healy, Peek (2007) point out that the optimal capital structure should depend on both business risk and the possibility of financial distress and that competitive sectors with a high technological and innovative nature such as automotive industry sector should not completely rely on debt financing and rather focus on the proper balance between equity and debt. Niu (2008) mentions basic factors on which the capital structure depends: tax rates, asset type, business risk, bankruptcy costs and profitability. To evaluate the structure of debt and equity, i.e. total capital of an enterprise, the following ratios will be used: debt ratio, debt to equity ratio, equity ratio (in most textbooks categorized as debt ratios concerning the balance sheet), and interest coverage ratio (categorized as coverage ratio concerning the income statement). All ratios impact the solvency of a business.

Debt ratio measures the proportion of total assets financed with debt. Higher the debt ratio, higher the financial risk becomes. Debt ratio is typically presented in percentage. The calculated value should range between 0 and 1. If the value exceeds 1, the company is insolvent and there is no equity. It means that total assets cannot cover for total liabilities and if the assets of the company were to be sold, the amount of cash obtained would not be sufficient to repay the debt. Leverage ratios are mostly important for creditors, who obviously prefer a lower value of debt ratio. Management and shareholders, on the other hand, would rather want to take an advantage of financial leverage, which positively effects profitability when using foreign capital (Grünwald, Holečková, 2007).

$$(8) \quad \text{Debt ratio} = \frac{\text{Total liabilities}}{\text{Total assets}} \times [100\%]$$

Debt to equity ratio includes total debt in the numerator and total shareholders' equity in the denominator, therefore measuring the relative proportion of debt capital to equity capital. The interpretation holds as with preceding formula. Higher the ratio, higher the risk of insolvency is.

If the value would be for example 1, it would mean that the company is financed equally by debt and equity – both having 50 percent share (Robinson, Henry, Pirie, Broihahn, Cope, 2012).

$$(9) \quad \text{Debt to equity ratio} = \frac{\text{Total liabilities}}{\text{Total equity}}$$

Equity ratio shows the exactly reverse situation than debt ratio does. Equity ratio measures total equity relative to total assets. In other words, it analyzes the proportion of total assets financed by shareholders' equity. Therefore, higher the debt ratio gets, lower the equity ratio becomes, and vice versa. Both of them must equal together to 100 percent.

$$(10) \quad \text{Equity ratio} = \frac{\text{Total equity}}{\text{Total assets}} \times [100\%]$$

Interest coverage ratio is sometimes referred to as “times interest earned” because it measures the number of times an entity's operating income covers its interest payments (Robinson, Henry, Pirie, Broihahn, Cope, 2012). Lower the ratio, worse the credit worthiness of a company is. This ratio is particularly useful for creditors as well as rating agencies. The general perception is that this ratio should not be lower than 3 (Watson, Head, 2009).

$$(11) \quad \text{Interest coverage ratio} = \frac{\text{EBIT}}{\text{Interest expense}}$$

1.4.5. Efficiency ratios

Operating efficiency ratios, sometimes called activity ratios or asset utilization ratios measure how effectively an enterprise manages its assets, both working capital and longer-term assets. Efficiency ratios provide analysts with the information on the rate of return being generated through the use of assets (Alexander, Nobes, 2010). Furthermore, since substantial resources are invested into the company's assets by shareholders, the utilization of assets has a direct impact on the company's management. Although there is a variety of efficiency ratios (e.g. total asset turnover, inventory turnover, receivables turnover, payables turnover, working capital turnover, fixed assets turnover, average collection period etc.), for the purposes of this thesis only asset turnover, inventory turnover, average collection period and average payment period will be used.

Asset turnover may be considered as a second driver when evaluating company's profitability and efficiency. Moreover, asset turnover directly influences both ROA and ROE, which will be seen further on during their decomposition. Asset turnover measures the ability of

an enterprise to generate revenues with a given level of assets (Robinson, Henry, Pirie, Broihahn, Cope, 2012). In particular, it measures the number of times assets were collected and converted to revenues during the analysed period. The value of asset turnover depends on a fact whether the company operates within a capital intensive industry with high fixed costs or whether it operates in an industry with lower fixed costs where it must reach higher asset turnover to compensate for lower profit margin. The relationship of asset turnover and profit margin will be further discussed in the chapter of DuPont decomposition of ROE. The value of asset turnover should be however at least 1 and the eq. is as followed:

$$(12) \quad \text{Asset turnover} = \frac{\text{Sales}}{(\text{Average}) \text{ total assets}}$$

Inventory turnover, on the other hand, measures how many times all inventories were sold and stored up. Thanks to this ratio, analysts may detect whether the company holds too much financial resources in an inventory or not. The value of inventory turnover should be however benchmarked to industry norms and competitive firms. Higher the inventory turnover, more likely the company has highly effective management. On the other hand, a high inventory turnover ratio could also suggest that the company does not carry adequate inventory and consequently this could impact revenues. Although inventory ratio is quite useful, it should be analysed with the company's revenue growth with that of competitive businesses (Robinson, Henry, Pirie, Broihahn, Cope, 2012).

$$(13) \quad \text{Inventory turnover} = \frac{\text{Sales}}{(\text{Average}) \text{ inventory}}$$

Average collection period measures the number of days it takes for company's customers to pay their bills from the moment of purchase. Within this period, the company provides a credit to its customers. On one hand, the trend of decreasing value of average collection period seems desirable; on the other hand, it could also mean that the credit policy of a company is too stringent and the company could lose its customers over the competition which could be consequently affecting sales. Alternatively, too high average collection period is not good as too much capital is tied up in assets. Hence, this ratio should be also compared to industry norms (Temte, 2005).

$$(14) \quad \text{Average collection period} = \frac{(\text{Average}) \text{ account receivables}}{\frac{\text{Sales}}{365}}$$

Average payment period measures the average number of days it takes for the company to pay its suppliers. It should be again compared to industry benchmark and moreover, it should be compared to liquidity ratios as it may happen that the average payment period is high but at the same time the company has sufficient cash. The explanation for such case could be for example lenient supplier credit (Robinson, Henry, Pirie, Broihahn, Cope, 2012). It is quite favourable that a company maintain the average payment period higher than the average collection period in order to prevent or minimize liquidity risks.

$$(15) \quad \text{Average payment period} = \frac{(\text{Average}) \text{ account payables}}{\frac{\text{Sales}}{365}}$$

1.4.6. Market ratios

Market ratios, or sometimes referred to as investment ratios, will be used in this thesis as mentioned earlier. The purpose of market ratios lies in the fact that these ratios enable to assess financial statements from equity investors' perspective who invest in businesses' stock. As Alexander, Nobes (2010) point out, most investment ratios relate to shares as shares represent a medium between the investor and the company.

The first mentioned indicator is **Earnings per share** (further as EPS) which gives a basic idea of the net income earned on each ordinary share that is attributable to ordinary shareholders as a result of profits generated in the previous year (Weygandt, Kimmel, Kieso, 2012). The numerator of EPS consists of net income attributable only to ordinary shareholders. EPS is important especially for shareholders and possible investors as it provides a fast overview of benefits related to the purchase of shares. EPS will be the only market ratio used in this thesis.

$$(16) \quad \text{Earnings per share} = \frac{\text{Net income attributable to ordinary shareholders} *}{\text{Number of shares}}$$

Price earnings ratio (further as P-E) reflects the price that the market and investors would be willing to pay for an entity's stock based on the current earnings. By this assessment they try to evaluate the future earnings of the entity and the fair market value of shares. The P-E ratio is computed by dividing market price of each ordinary share by EPS (Weygandt, Kimmel, Kieso, 2012). In practice it is sometimes very difficult to interpret P-E ratio correctly. Marek (2006) points out that there are many ways of looking at P-E ratio when comparing different enterprises. For example, there are market available shares of two very similar companies A and B, and investors are indifferent when deciding which one to choose. It may happen, however, that P-E

ratio of a company A is higher than the P-E ratio of a company B. Then an analyst would assume that shares of the company A are overvalued and must soon fall in value and equalize with shares of the company B (which would rise in value as they are currently undervalued). Another way to analyze this ratio is in terms of a possible exposure to risk. If shares of companies A and B differ in their risk and at the same time offer a same return, and the P-E ratio of the company A is higher than that of B, an analyst would probably assume a rational investor paying more for a less risky share, in other words paying more for the share of the company A. Furthermore, practitioners look at the P-E ratio evaluating a change over time. Analysts always have to bear in mind that the change of the P-E ratio may be a result of increasing/decreasing companies' profits in a particular time period causing the market value of shares to fall or rise, often connected to economic cycles. This value movement may and may not be proportional with the movement of profits as the market price often reflects the investors' perception of a particular company.

$$(17) \quad \text{Price earnings ratio} = \frac{\text{Market price per share}}{\text{Earnings per share}}$$

The last mentioned ratio in this category – **Price to book ratio** (further as P-B), allows analysts to determine whether an entity's stock could be undervalued or not. In general, the perception is: the higher the indicator, the better for a company. On the other hand, its result may vary depending on the industry. In case the ratio would be less than 1, it would indicate the undervaluation of stock.

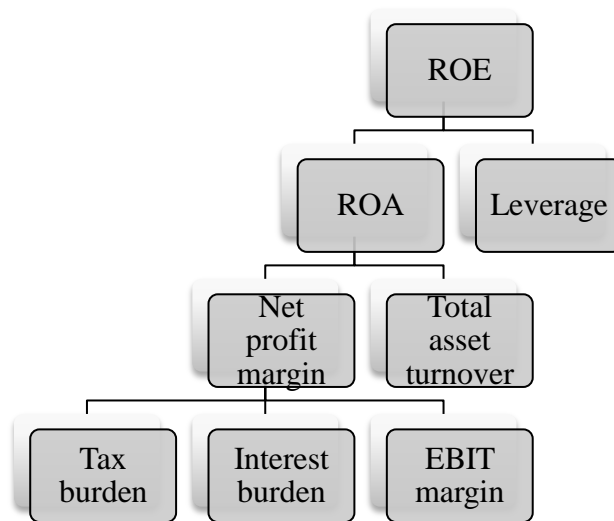
$$(18) \quad \text{Price book ratio} = \frac{\text{Market price per share}}{\text{Book value per share}}$$

1.4.7. The DuPont decomposition of ROE by five components

The DuPont Company and the ratio system developed by Donaldson Brown in the first half of the 20th century were mentioned already. As a consequence, the DuPont analysis bears the name of this particular chemical company until today.

The basic overview is seen on the following scheme:

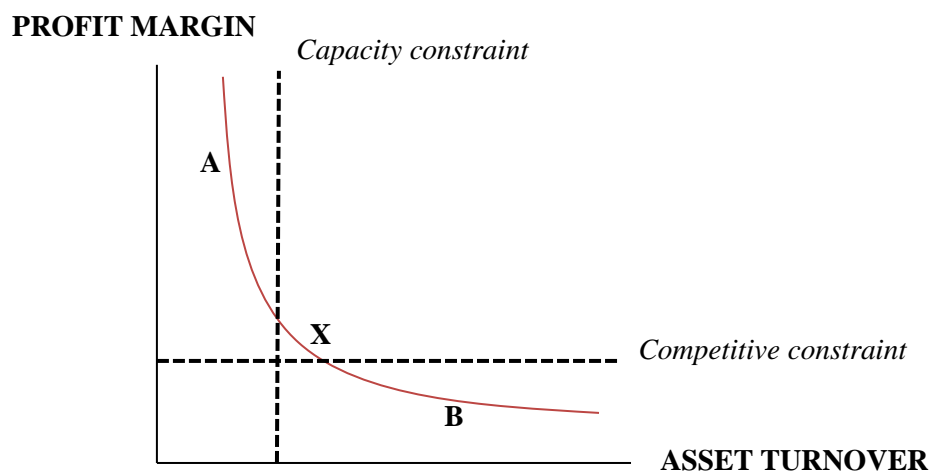
Scheme 1-7: ROE decomposition



Source: Robinson, Henry, Pirie, Broihahn, Cope (2012), pg. 346

First of all, the scheme shows only a few major elements playing a significant role when decomposing and understanding ROE. For instance, asset turnover could be further decomposed to operating income and assets, assets could be decomposed to fixed assets and current assets, and current assets to other current assets, inventory, accounts receivable and cash and cash equivalents. Return on equity is therefore quite complex indicator and knowing the components may provide a more detailed understanding of the entity's performance. ROA measures the return earned by an entity on its assets and the mentioned eq. was EBIT divided by total assets. However, ROA may be decomposed to an equation: asset turnover times profit margin. The relationship between these two indicators is best shown graphically:

Scheme 1-8: ROA decomposition



Source: Grünwald, Holečková (2007), pg. 89

Enterprises may earn their profit by focusing more or less equally on profit margin and asset turnover (that would represent the company X on the graph). On the other hand, entities more often differ in the indicators' distribution depending on capital intensity of an industry. The company A is a capital intensive company, which consequently has a higher share of long-term assets and higher fixed costs. Such enterprises achieve higher profit margin and the industry within they operate is difficult to enter because of high fixed costs. These companies function on so called capacity constraint. The company B provides an example of a company operating within the competitive constraint. Low capital intensive industries have lower fixed costs and the competitive businesses may easily enter on the market. Usually, prices of products tend to be similar and companies cannot achieve very high profit margins. As a result, in order to get sufficient profitability, they must reach high asset turnovers. (Grünwald, Holečková, 2007).

ROE, as graphically shown, consists of three key indicators – profit margin, asset turnover and a measure of financial leverage (often referred to as equity multiplier) which tells us to what extent assets are financed by debt, e.g. if total assets are valued at 100€ and total equity at 50€, then equity multiplier is 2.0. Following equations decompose ROE:

$$(19) ROE = Profit\ margin \times Asset\ turnover \times Financial\ leverage$$

$$ROE = \frac{Net\ income}{Sales} \times \frac{Sales}{(Average)\ total\ assets} \times \frac{(Average)\ total\ assets}{(Average)\ total\ equity}$$

$$(20) ROE = Tax\ burden \times Interest\ burden \times EBIT\ margin \times Asset\ turn. \times Leverage$$

$$ROE = \frac{Net\ income}{Pretax\ income} \times \frac{Pretax\ income}{EBIT} \times \frac{EBIT}{Sales} \times \frac{Sales}{Total\ assets} \times \frac{Total\ assets}{Total\ equity}$$

Financial leverage was already mentioned earlier. It expresses the enterprise's level of debt financing. ROE gets greater as financial leverage increases. The advantages of debt financing have been discussed earlier. In general, debt financing is cheaper and has an overall positive effect only if an additional unit of a currency of debt appreciates more than the interest rate on debt. The eq. no. 17 explicitly shows that ROE is influenced by ROA, by taxation and the debt financing which is reflected in two particular indicators: financial leverage and interest burden ratio. Due to the nature of these indicators, leverage and interest burden move in opposite directions. The higher financial leverage ratio, the better ROE becomes. On the other hand, the more indebted a company is, the greater interests must pay, and consequently this results in lower returns to shareholders. When assessing the optimal level of debt, factors such financial stability, the industry or credit terms play a role and interest margin have to be taken into account (Grünwald, Holečková, 2007).

1.5. Cash Flow Statement Analysis

Cash flow analysis together with cash flow ratios are an essential part when evaluating the company's performance. Cash flow analysis is considered as important as the four general ratio categories above and very often discussed separately as it provides a different view on the financial performance of any entity. Cash flow statement became very important as analysts found out that the ability of an enterprise to meet obligations when due is more likely to recognize from the structure of cash flows. An enterprise may show quite high profitability and simultaneously generate little cash. By way of example, the enterprise might sell mostly on credit, therefore achieving sufficient profitability but insufficient cash. This fact is related to the basic assumption of an accounting – the accrual basis principle. According to IFRS 2014 approved by the European Union: “...under this basis, the effects of transactions and other events are recognized when they occur (and not as cash or its equivalent is received or paid)...and they are reported in the financial statements of the periods to which they relate”. Accrual basis principle is therefore not sufficient and the significance of looking at the cash flow statements figures must be emphasized.

When analyzing a company's cash flow statement, it is essential to firstly look at individual sources and determinants of operating cash flow, investing cash flow and financing cash flow. Generally, it is crucial for any enterprise to generate positive operating cash flow in the longer time horizon to be able to maintain its operations, to generate resources for investments in order to be independent of debt financing, and obviously for the repayment of existing debt as well as the dividend payout. The excess of operating cash flow over capital expenditures is known as free cash flow as pointed out by Robinson, Henry, Pirie, Broihahn, Cope (2012) and the following eq. shows the free cash flow to the firm. Free cash flow represents the cash an entity generates after spending the money on both running and expanding its business.

$$(21) FCFF = CFO + Interest\ expense \times (1 - Tax\ rate) - Capital\ expenditures$$

Although all automotive manufactures analyzed in this thesis implement JIT (just-in-time) logistics, they still have high inventories, and none of them are new or at a growth stage. Therefore, negative operating cash flow is generally not expected even during times of financial distress. How global financial crisis however hit three major German conglomerates will be seen in the analytical part. It is also very important to analyze each item separately as cash flow from investing and financing activities may reveal sources of cash or use of cash, e.g. investing cash

flow records cash spent or received on property, plant, and investment (further on as PPE), or on intangible assets, on debt and equity instruments etc. Financing cash flow records cash flows from issuing debentures, loans, notes, and cash repayments of amounts borrowed or other types of payments such as redemption of shares etc.

Analysts use many forms of cash flow ratios. For the purposes of this thesis only a few ratios will be described and used:

$$(22) \quad \text{Cash return on assets} = \frac{CFO}{(Average) \text{ total assets}} \times 100 [\%]$$

$$(23) \quad \text{Cash return on equity} = \frac{CFO}{Shareholders' \text{ equity}} \times 100 [\%]$$

Robinson, Henry, Pirie, Broihahn, Cope (2012) divide cash flow ratios either as those with performance explanatory power or those linked to coverage ratios measuring the liquidity and solvency. The ratios above measure the operating cash which is generated per euro of assets or per euro of shareholders' investment, therefore dealing with performance/profitability. Analysts usually compare differences between ROA and Cash ROA, or ROE and Cash ROE. When evaluating and comparing indicators, analysts assume that for instance cash flow from operations (referred to as CFO) should be higher than net income in the numerator of ROE, therefore, under these circumstances, cash ROE should be higher than ROE and analysts might presume that the generated profit is sufficient for the dividend payout. In this case, cash return on equity provides a better understanding on entities' performance. The higher the ratio, the better it is. Cash return may be similarly measured on sales etc. On the top of that, cash flows cannot be easily subjected to manipulation and therefore are very much favoured.

With regard to the solvency and the overall liquidity, many indicators such as cash flow to debt ratio, capital expenditure ratio or for example cash interest coverage ratio might be used. All indicators represent important supplements to measure the ability to meet obligations when due. When considering the overall long-term solvency of the company, analysts use solvency ratios as well as cash flow analysis while looking into the long-term economic situation detecting the ability to achieve profits and meet the obligations. The following equations belong to examples of cash flow coverage ratios (Robinson, Henry, Pirie, Broihahn, Cope, 2012):

$$(24) \quad \text{Cash flow to debt ratio} = \frac{CFO}{Total \text{ liabilities (debt)}}$$

$$(25) \quad \text{Cash flow to current liabilities} = \frac{CFO}{(Average) \text{ current liabilities}}$$

$$(26) \quad \text{Cash interest coverage} = \frac{CFO [+ \text{ interest paid} + \text{ taxes paid}]}{\text{Net interest paid}}$$

Cash flows are very significant when analysing an overall performance and shaping a future strategy.

1.6. Bankruptcy and Credit Scoring Models

The fundamental attribute of these models is the ability to generally characterize the financial performance and the economic effectiveness of an enterprise. Bankruptcy models as well as credit scoring models function on the basis of comparative-analytical and statistical methods in order to diagnose the performance of a company and even to predict possible financial distress.

There are two types of models as pointed out by Caouette, Altman, Narayanan, Nimmo (2008) – univariate (i.e. one variable) and multivariate. Univariate systems generally seek to find one simple characteristics that would reliably distinguish between prosperous and poor doing entities. For instance, the Quick Test model of Austrian economist Peter Kralicek or the discriminant analysis of Beaver belongs to univariate models. When constructing a multivariate model, on the other hand, the selection of proper ratios as well as the objective establishment of weights attached to each selected ratio is essential. Examples of multivariate models could be the Altman's Z-Score model or the Taffler's model. Despite a number of known and used models, only the Altman's model, the Taffler's model and the Quick Test will be used.

1.6.1. The bankruptcy models

The bankruptcy models serve as predictors of financial distress. Financial distress occurs when an enterprise faces an insolvency that cannot be solved without significant changes in operating or financing activity of the enterprise (Grünwald, Holečková, 2007). These models function on the basis of an ex ante analysis and should provide an early warning indication of an upcoming financial distress.

1.6.1.1. Beaver's univariate model

The study of Beaver (1966) which was already mentioned in the literature overview, set the stage for attempts of multivariate modelers that studied the relationship between the company's failure and the ratio structure. Beaver's univariate model was based on a number of businesses that represented failed and nonfailed companies, and each business was evaluated by 30 selected ratios. The Beaver's study classified an entity as failed when any out of the following events between the years 1954-1964 occurred: bankruptcy, bond default, an overdrawn bank account, or nonpayment of a preferred stock dividend (Gibson, 2008). Beaver concluded that an enterprise can make predictions about the company's ability to pay its obligations as they mature at least 5

years before the failure on the basis of ratios. This model is mentioned thanks to its significant contribution but it is not used in this thesis.

1.6.1.2. The Altman's Z-Score

Edward I. Altman is also considered among the first who studied, discussed and highlighted the practical and analytical use of financial ratios. He is recognized as the leading academician dealing with credit risk management and bankruptcy models until today. His Z-Score model (1968, 1995 and 2005) and ZETA-Score model presented by him, Haldeman, and Narayanan in 1977 are based on a multivariate approach and are still being used by practitioners.

The initial sample of Altman consisted of 33 industrial companies who declared a bankruptcy from 1946 to 1965 and 33 nonbankrupt companies doing well at the time, whose asset size differ between 1 million USD and 25 million USD (Altman, 1968).

The model of Altman defines linear equation and uses five financial ratios as variables which are subsequently weighted by specific coefficients. The model delivers an overall discriminant score which is called the Z-Score (Marinič, 2008):

$$(27) \quad Z - Score = 1.2 \times X1 + 1.4 \times X2 + 3.3 \times X3 + 0.6 \times X4 + 0.999 \times X5$$

$$X1 = \frac{\text{Working Capital}}{\text{Total assets}}$$

$$X2 = \frac{\text{Retained earnings (balance sheet)}}{\text{Total assets}}$$

$$X3 = \frac{\text{EBIT}}{\text{Total assets}}$$

$$X4 = \frac{\text{(Market value of) Equity}}{\text{Total debt}}$$

$$X5 = \frac{\text{Sales}}{\text{Total assets}}$$

As summarized by Gibson (2008), X1 measures the company's net liquid assets relative to the total capitalization. In this case, working capital means the net working capital, therefore current assets minus current liabilities. X2 expresses cumulative profitability over time. X3 examines a productivity of the company's assets and abstracts from leverage factors as well as tax. X4 measures the extent to which the company's assets can decline in value before the debt

exceeds the assets and the company falls into insolvency. Equity is represented by the market capitalization – market value of all shares of stock (preferred and common). X5 examines the sales-generating ability with regard to the company's assets.

The Altman's model says the lower the Z-Score, the more likely the company goes bankrupt. If the Z-Score is computed over time, it may detect whether the company is more likely to go bankrupt or not. The cutoff point was set to 2.675 in a later study in the 70s as the value represented companies similar to those of past failures (Gibson, 2008). According to the original study, the bankruptcy zone, the gray zone and the prosperous zone are following (Marek, 2006):

Scheme 1-9: the Altman's Z-Score

bankruptcy zone	grey zone	creditworthy zone
<i>Z-Score < 1.81</i>	<i>Z-Score: 1.81 – 2.99</i>	<i>Z-Score > 2.99</i>

Source: Marek (2006), pg. 302

1.6.1.3. The Taffler's bankruptcy model

Two economists, Taffler and Tisshaw, followed the Altman's study on a sample of British enterprises. Out of 80 ratios applied onto 92 businesses four key ratios were used and together with weights presented in their study in 1977 (Taffler, 1983). In contrast to the Altman's equation, Taffler puts more weight into liquidity. The Z-Score eq. is (Machek, 2014):

$$(28) \quad Z - Score = 0.53 \times X1 + 0.13 \times X2 + 0.18 \times X3 + 0.16 \times X4$$

$$X1 = \frac{EBIT}{Short - term liabilities}$$

$$X2 = \frac{Current assets}{Total liabilities}$$

$$X3 = \frac{Short - term liabilities}{Total assets}$$

$$X4 = \frac{Revenues}{Total assets}$$

Scheme 1-10: the Taffler's Z-Score

bankruptcy zone	grey zone	creditworthy zone
<i>Z-Score < 0.2</i>	<i>Z-Score: 0.2 – 0.3</i>	<i>Z-Score > 0.3</i>

Source: Machek (2014), pg. 15

1.6.2. The credit scoring models

In comparison with the bankruptcy models, the credit scoring models provide an ex post analysis whose main task is to diagnose the performance of an entity, and to examine the causes that led to the current situation. The credit scoring models are based on theoretical grounds unlike the bankruptcy models which were derived from the knowledge about the actual companies. Any financial analyst may create its own credit scoring model.

1.6.2.1. The Kralicek's Quick Test

One of the most famous models used by practitioners is the Quick Test of Peter Kralicek that was published in 1990. The model is based on key four ratios to which scores are assigned based on a calculation of a current situation of an enterprise. The model focuses on solvency as well as cash solvency, on the profitability as well as cash operating profitability (Grünwald, Holečková, 2007). The Kralicek's algorithm is shown in the following table:

Scheme 1-11: the Quick Test of Kralicek

The indicator	Great Score (4)	Very good Score (3)	Good Score (2)	Bad Score (1)	In jeopardy Score (0)
X1	> 30%	> 20%	> 10%	> 0%	negative
X2	< 3 years	< 5 years	< 12 years	> 12 years	> 30 years
X3	> 15%	> 12%	> 8%	> 0%	negative
X4	> 10%	> 8%	> 5%	> 0%	negative

Source: Grünwald, Holečková (2007) pg. 192

$$X1 = \frac{\text{Total equity}}{\text{Total assets}} \quad X2 = \frac{\text{Total debt} - \text{current financial assets}}{\text{CFO}}$$

$$X3 = \frac{\text{EBIT}}{\text{Total assets}} \quad X4 = \frac{\text{CFO}}{\text{Sales}}$$

X1 denotes the financial strength of a company by analysing the percentage proportion of debts within total assets. X2 expresses the time period in which the company is capable to repay its obligations. X3 simply measures ROA. And finally, X4 examines the return on sales with the difference that the operating cash flow is used in the numerator. The company's position is then evaluated with regard to following aspects:

$$(29) \quad \text{Financial stability} = \frac{(X1 + X2)}{2} \quad [\text{points}]$$

$$(30) \quad \text{Revenue position} = \frac{(X3 + X4)}{2} \quad [\text{points}]$$

$$(31) \quad \text{Overall company's position} = \frac{(X1 + X2 + X3 + X4)}{4} \quad [\text{points}]$$

If the company scores 3 and more points, its situation is very good, if less than 1, it is bad.

1.7. Economic Value Added (EVA) as a Market Value Measurement

Economic value added (further as EVA) was presented by a consulting company Stern Stewart & Co. in 1990 as a metric tool for investment valuation. EVA is a performance market measure examining a surplus value (or a shortage), which is created from an investment and which may be compared to other possible investments. It is used mainly for investors', shareholders' and management's decisions concerning the maximization of the economic value. The major advantage of this model is the inclusion of the opportunity cost of capital (Stewart, 2013). EVA comes up with a profit that should cover for the cost of capital. In other words, it determines the surplus of profits that remains after the costs of capital are subtracted from net operating profit. Although there are other value measurement methods such market value added model, internal value, cash flow value added model, shareholder's value added etc., only the EVA model will be applied to BMW, Daimler and VW. This model was chosen as a tool complementing the financial analysis. It uses data already available from financial statements as well as performance measures which cannot be obtained through financial analysis.

$$(32) \quad EVA = NOPAT - WACC \times C$$

$$(33) \quad NOPAT = Operating\ income \times (1 - Tax\ rate)$$

$$(34) \quad WACC = \frac{E}{D + E} \times cost\ of\ equity + \frac{D}{D + E} \times cost\ of\ debt \times (1 - t)$$

$$E \dots equity \quad D \dots debt \quad t \dots tax\ rate$$

As already said, economic value added is calculated by subtracting capital costs from net operating profit after tax. NOPAT stands for net operating profit after tax, reflects the efficiency and will be entirely computed from the accounting statements in accordance with the method of Languuth (2008). Capital costs are included in WACC which stands for weighted average cost of capital, and Capital Employed which represents the overall invested capital and will be also computed entirely from the statements as net operating assets (Languuth, 2008). Capital employed will be calculated by adding up operating assets and net non-cash working capital. To determine non-cash working capital, non-interest bearing current liabilities will be deducted from non-cash current assets. Damodaran highlights that the increases in working capital are perceived as cash outflows, because cash which is tied up in working capital cannot be used

elsewhere in the business and does not earn returns. As it does not earn returns, it is often used non-cash working capital in the investment analysis (Damodaran, 2015). Therefore when conducting the working capital, cash and cash equivalents will be deducted from total current assets. Non-interest bearing liabilities are those, which do not require interest payments. The sum of non-interest bearing current liabilities will be obtained from the consolidated financial statements, from which the non-interest bearing provisions will be deducted as well, because manufacturers exclude them when calculating the return on capital employed. WACC measures the risk of opportunity cost that investors face when investing in a stock. Furthermore, it highlights the importance of weights of capital structure which should be based on market values. In order to calculate the market value of equity, i.e. market capitalization, the number of common shares and preferred shares will be multiplied by their market price and summed up. Simultaneously, WACC poses the greatest demand to the EVA calculation because it includes variables that are difficult to calculate for an ordinary user. The computation of WACC will be therefore supplemented by Bloomberg data. For the market value of debt a yield to maturity, which includes the current up-to-date prices of outstanding bonds, would be needed, therefore instead of the market value of debt the book value of debt will be used as a proxy. In general, the book value of debt is frequently used in empirical studies and suggested also by Brigham and Daves (2015) as an estimate for the debt's market value. Damodaran (2013) however points out that the effect of using the book value of debt may be relatively small for healthy companies and the book value of debt would be close to the market value of debt. On the other hand, he highlights that for distressed companies the difference might be significant. This must be taken into account when analysing EVA.

Cost of equity may be estimated using different methods. The most common one is known as the Capital asset pricing model (further as CAPM) calculated with a help of following eq. (Pratt, Grabowski, Brealey, 2014):

$$(35) \quad \begin{aligned} CoE &= \text{Risk free rate of return} + (\beta \times \text{Market risk premium}) \\ \rightarrow MRP &= \text{Expect. return of the market} - \text{Risk free rate of return} \end{aligned}$$

For the valuation of risk free rate of return which might be viewed as the minimum rate of return that an investor would expect to receive if the investment had no risk, a treasury bond rate could be used. Expected returns very much depend on the investor whether he seeks for a higher market risk premium resulting in a higher risk or a smaller market risk premium. Both the market risk premium and the risk free rate of return will be obtained from the "Marktrisikoprämie"

database. The risk free rate corresponds to the 10-Year German Bond Yield. Beta of asset (β) measures the security risk of the stock's volatility in relation to the market. Bodie, and Merton (1999) point out that beta describes the marginal contribution of a security's return to the standard deviation of a market portfolio's return. Beta of 1.0 represents the market. If $\beta > 1.0$, the stock moves faster than the market and such stock is perceived to be both riskier and more profitable. The stock of $\beta < 1.0$ moves less than the market and offers generally lower but safer returns. The risk premium on any asset equals in equilibrium to its β times the risk premium on the market portfolio. The theory of the security market line, which will not be included in this thesis, can illustrate this relationship. Beta could be calculated with a help of regression analysis. It will be however obtained from the Bloomberg database.

When estimating cost of debt, the approach of Koller et al. (2010) was used. He considers the entity's credit rating and its default spread, and explains this theory on the basis of the fact that credit rating may indicate the likelihood of the entity's default and furthermore, that the default spread indicates the lenders' risk premium, which the lender would require in order to cover the exposure to a possible default risk. Hypothetically, companies with equal credit ratings would have comparable default spreads, and lower the credit rating, higher the default spread should be. The eq. of pre-tax cost of debt is the sum of the risk free rate and the default spread. Koller et al. (2010) uses in his theory the after tax approach, however for the WACC computation, the pre-tax formula is used as the tax rate is later added.

WACC also incorporates the fact that debt returns are tax deductible. The choice of tax usually depends on a situation, whether a user makes forecast projections – in such case the marginal tax rate should be computed, or the past-performance evaluation – in such case the effective tax rate appropriately serves as an estimate. The effective tax rate was used in this thesis and obtained from the consolidated annual reports of all conglomerates. The effective tax rate is dependent on earnings; it is the rate at which the profits before tax are taken in order to be taxed. In other words the rate considers taxes paid in relation to the taxable income.

To conclude, EVA brings an additional value added if the result is positive ($EVA > 0$). In case $EVA = 0$, returns on invested capital equal to cost. And finally, when EVA has a negative value, there is no return on invested capital and that result represents the worst case scenario no investor would want to face. On the other hand, there are circumstances when EVA of a company may become negative. It however does not mean that the company cannot earn relatively high returns in the future.

2. The Economic Global Downturn

In this chapter, I would like to summarize key factors leading to the worst economic downturn since the Great Depression in 1930s. Global financial crisis triggered a severe recession in the period of 2008-2012 and had a significant impact on the deepening of the European sovereign debt crisis and the overall stagnation in industries. Another section in this chapter will be devoted to the situation in Germany during the crisis and its reflection on the automotive industry. Finally, all three automotive conglomerates Daimler AG, Volkswagen Group and BMW AG will be introduced.

2.1. The Causes of the Global Financial Crisis

Basically, there are two views on the causes of the financial and economic crisis, which I would like to shortly mention. This first one covers the housing bubble and its problems with subprime loans and the sharp growth of risky securities, the lack of regulation and preparation of what was to happen. The second approach includes views of the non-mainstream economists who predicted the crisis and the global downturn as it represented a simple result of a too indebted society, and the burst of the housing bubble was just a consequence that triggered the action itself.

After 2000, real estate prices were rising in many countries. The US economy was recovering from the effects of the dot-com bubble, which was caused by the technology shares, which like in any bubble firstly surged and subsequently dropped. Many macroeconomic factors helped encourage the real estate bubble in this period, which was on the rise. The expansionary policy of the US aimed to increase general borrowing in order to promote economic growth. From 2000 till 2003, the US Federal Funds Rate was reduced to its historical minimum from 6.5% to 1.0%. Lower interest rates were meant to stave off the slowdown but helped accumulate the price bubble on the real estate, in particular the mortgage market. The main issue was the increasing demand. Higher demand for real estate led firstly to higher prices because the supply of the real estate is relatively stable in a short term. These higher prices were accepted and anticipated and therefore became self-fulfilling. There were however more factors responsible for the bubble creation. First of all, innovations in the structural financing and the expansion of the secondary mortgage market: the financial crisis appeared on the market for asset-backed securities, for which the most common products were derivatives such as the collateralized debt obligations, mortgage-backed securities etc. The price of these products is generally determined by the price

of the underlying asset, which is the purpose of the structural financing itself. It's a process of a securitization when any asset with regular cash flows such as mortgage with regular payments is backed by an asset. The nature of the securitization is then a creation of financial products (derivatives), whose value depends on the underlying asset, from which results the credit risk. American agencies Fannie Mae and Freddie Mac, which were sponsored by the government until they were placed into conservatorship in September 2008, started this process of a secondary mortgage market already in 1970s as they began to buy mortgages into their portfolio, "pack them" and resell them. They were followed by the investment banks belonging to the shadow banking system of the US. Investment banks were not subjected to the same regulations as commercial depositary banks and therefore strongly supported the rise in credit and subprime loans, which was provided to increasingly less solvent applicants that had adverse conditions in their credit agreements. As it was undesirable to stay exposed to such extent of credit risk, banks started creating securities, which often consisted of both prime and subprime loans and the investor, to whom these securities were sold, had no information on the structure of the derivative provided by the bank.

It all came to a point when banks did not longer care about repayments of loans as they profited more from the credit insurance, which was transferred to investors who bought securities. When trading volumes of the real estate finally declined and property prices stopped, mortgage payments surged. Obligations could not have been repaid and the value of asset-backed securities started to fall. Since the US investment banks increased their financial leverage immensely and heavily relied on debt and speculation, which supported their vulnerability to a financial shock, they were doomed to collapse. Top five US investment banks went either bankrupt, which happened to Lehman Brother, or were sold – Bear Sterns was taken over by JP Morgan Chase & Co. and Merrill Lynch was acquired by Bank of America, or became commercial banks and accepted greater regulation, which was the course of Goldman Sachs and Morgan Stanley.

During this period, a systematic risk was created and should not be overlooked. The failure of credit rating agencies to correctly price the risk of asset backed securities and provide corresponding ratings caused investors to undertake much risk by buying these assets. Although securitization has been done since 1970s, its importance was understood just after 2005. The global financial crisis that started in the US was consequently transferred globally through financial engineering products as a result of the price imbalance. Only one third of the credit risk transformed to CDOs stayed in the US, the other third was bought by European investors and the rest by Asian

investors. On the contrary, the credit risk from European securities stayed mainly in Europe, approx. 60% of it. Europeans did not spread the risk as well as Americans, and the European recession began.

The general knowledge of the inability to predict this financial crisis persists, however experts and few professional economists published articles even a year before the financial crisis happened, predicting a continuously slowing real estate market would lead to the burst of the bubble and a subsequent collapse. Therefore, the second view on the causes of global financial crisis includes opinions of non-mainstream economists such as Dean Baker, Steve Keen, Robert Shiller, Michael Hudson etc., who warned of the crisis. Mainstream economists claim that the overall level of household and corporate debt is not a problem as debt is simply transferred from one person to another. According to the theories of Irving Fisher and Hyman Minsky, the economy is however not in equilibrium as a result of an obvious fact that banks lend money by creating them. They increase the purchasing power while creating debt at the same moment. The household and corporate debt had been increasing much earlier before the real estate and the securitization bubble burst. Theory of crises triggered by debt, drafted by Fisher and Minsky, counts on the fact that the economy is cyclical and not in equilibrium. The ongoing debt crisis, which has been taking place since 2009 and severely hit countries like Greece, Spain, Cyprus etc., might be a proof. The same economists that warned of the financial crisis give indications of an inevitable global debt bubble, which they claim to burst soon in other countries such as the US, the United Kingdom, or even China while the world is focusing on the Greek debt crisis and is recovering from the global recession.

2.2. German Market during the Crisis

The extent of the financial crisis did not spare even strong economies like Germany. German economy, with its population of approx. 82 million, is by far the largest economy in Europe, approx. the fourth largest in the world, and one of the leading exporters globally as more than 30% of a national output is exported.

One of the strongest industry sectors is traditionally the automotive sector, which according to Trade & Invest in Germany (2015) represents around 20% of total German industry revenue. When compared to other European markets, Germany nowadays produces over 30% of all passenger cars on the European continent. The German automobile industry is also one of the largest employers with around 775 thousands of employees as a whole. There are around 43 automobile assembly and other supplying plants. Values of German car brands are innovation, reliability, safety. The dynamic investments into R&D reached €17.6 billion in 2014, which is equivalent to 1/3 of total R&D in Germany (Trade & Invest Germany, 2015). With regard to the premium car production, German export accounts for 46% of global production. The most significant exporting partners are mostly neighboring European countries, followed by the US and Asia. The US is the largest importer of German-made vehicles. (Trade & Invest Germany, 2014/2015).

Regarding the economic situation, the German economy started growing after 2005 achieving very positive results till the financial crisis, when the growth rate fell. In comparison to other economies, the major problem of Germany was not the debt and credit bubble, although one of the Lehman Brothers' subsidiaries was also located in Germany – Frankfurt am Main and influenced the development of capital markets, it was mainly the trade flows that enormously slowed down the economy and as a consequence, export oriented industries such as automotive industry fell into a deep recession. The strengthening exchange rate of euro against dollar had also an adverse impact onto the German export as the demand for German products decreased. The demand for German products kept declining also in European countries as well as Asian ones with the exception of China. The global crisis reflected in unemployment, declining GDP per capita etc. Effects of the crisis in the automotive industry were already noticeable in the last quarter of 2008. Export and production began to fall and reached negative figures. The worst situation experienced Opel, General Motor's brand. Opel even asked for the government assistance in order to avoid bankruptcy. First, government resisted, but in the end decided to agree on the rescue plan. The German government generally tried to help one of its most significant sectors by implementing several packages, e.g. partial tax reliefs, scrapping subsidies,

ecological premiums etc. Both scrapping subsidies and ecological premiums helped especially middle-class car manufacturers such as Opel or Volkswagen in comparison to premium brands such as Audi, Porsche, BMW or Mercedes, due to the fact that especially older and smaller passenger cars were sold at the time and exchanged for new ones. Exactly €2,500 was paid to everybody who had his more than 9 year old car scrapped and bought a new one instead. Such tailor made rescue plans influenced the situation only temporarily until the government run out of money dedicated to this program. However, the Federal German government truly helped the economy by introducing business support programs – ”Konjunkturprogramme”, which encouraged the recession to its end already in 2010, when the economy grew by almost 4% and since mid-2011, the severe period of financial crisis was more or less over.

2.3. Introduction of Concerns

2.3.1. Daimler AG

The history of Daimler AG dates back to 1885, when the first automobile generating its own power was created by Karl Benz and patented as Benz Patent Motorwagen. The first automobile was sold already in 1888 by the company Benz & Cie. Daimler Motors Corporation (further as DMC) was founded in 1890 by Gottlieb Daimler and Wilhelm Maybach. In 1902, the company manufactured its first Mercedes car. In 1926, these two companies Benz & Cie. and DMC merged and created a globally recognized brand Daimler-Benz with its Mercedes-Benz trademark. In general, the company targeted a market for luxurious cars. At the end of the 20th century, Daimler-Benz was well established on the European continent. As a consequence, the goal of Daimler-Benz was to become a global player, which led to a further merger of Daimler-Benz with Chrysler in 1998 and DaimlerChrysler was formed. Although Chrysler was extremely profitable in the mid-1990s, the company showed negative profits already in 2000 – two years after the merger. Apart from the financial factor of loss making Chrysler, when Daimler must have invested a lot of money into the US subsidiary, other factors such as cultural differences played a role. The two companies were incompatible in every aspect and the merger ended in 2007 when Chrysler was sold. In 2007, the current name Daimler AG was established.

Daimler AG is a public company headquartered in Stuttgart, Germany. In 2014, there were 279 972 people employed by the Group. The primary business is the development, production and distribution of cars, trucks, and vans. Its portfolio also consists of tailored financial services. There are five divisions of the company: Mercedes-Benz Cars, Daimler Trucks, Mercedes-Benz Vans, Daimler Buses, and Daimler Financial Services. In terms of consolidated revenue share, divisions amount to the following percentage in order of their reference: 55%, 23%, 7%, 3% and 12% by Daimler Financial Services. Mercedes-Benz Car division comprises the following brands: Mercedes-Benz and its sub-brands Mercedes-AMG and Mercedes-Maybach, and Smart Automobile. Daimler Trucks division includes the Mercedes-Benz brand, Mitsubishi Fuso, Freightliner, Western Star, Thomas Built Buses, and BharatBenz. The product range of the Mercedes-Benz Vans division develops and produces vehicles under the brands Mercedes-Benz and Freightliner. Daimler Buses division with its Mercedes-Benz brand is complemented by SETRA brand. The Financial Services division supports the sales of the Daimler Group in general.

Daimler has been recognized among the best at technological innovations. The current main objective is the maximum emission reduction in order to protect the environment. The fulfillment of this plan is the fact that Daimler has the widest range of hybrid cars, purely electric cars or fuel-cell-powered vehicles.

2.3.2. Volkswagen Group

Volkswagen Group was founded in 1937 by the Nazi Deutsche Arbeitsfront (German Labor Front) backed by a support of Adolf Hitler with one purpose – to manufacture the car for people, which is translated into German as the Volkswagen car. The task was entrusted to a consulting firm of Ferdinand Porsche. During the WWII, the production was mainly focused on military cars as well as flying bombs. Between the end of WWII and 1948, the company was taken over by British government, but plants were returned to Germany soon. The development of the passenger cars started quickly increasing after the war, especially in 1950s and 1960s, and thanks to the car models of Beetle or Golf, VW gained popularity among people. In 1960, the company was named to Volkswagen Aktiengesellschaft. Another historical milestone happened, when VW acquired Auto Union GmbH from Daimler-Benz in 1965, into which AUDI AG was merged in 1969, and started the production of the first post-war Audi models. Nowadays, VW Group consists of twelve brands functioning as individual entities on the market: Volkswagen Passenger Cars, Audi, SEAT, Škoda, Bentley, Bugatti, Lamborghini, Porsche, Ducati, SCANIA, MAN, and Volkswagen Commercial Vehicles. Additional business field of VW, the second division apart from the automotive division, concentrates on financial services and is included within the Group statements.

The headquarters of VW is in Wolfsburg, Germany. VW is currently the largest car manufacturer in Europe and one of the largest in the world. It is a public company and its shares are primarily traded on the Frankfurt Stock Exchange operated by Deutsche Börse AG. Volkswagen Group is an umbrella company of many leading brands. One of the most interesting hostile takeovers in business history is connected with VW and Porsche. As I will return to this subject in connection with the financial analysis, I only mention the relationship between both companies. Porsche SE was created in 2007 replacing the old name of Porsche Dr. Ing. h.c.f. GmbH. At the time, Porsche SE owned 100% in Porsche AG and a stake of approx. 51% in VW. Before the financial crisis, Porsche intended to take over VW. However, as a result of the financial crisis, Porsche was significantly hit and VW eventually managed to reverse the course of action and to buy a 49.9% stake in Porsche AG in December 2009. VW acquired the complete

control of Porsche in 2012. The part of the agreement included that VW management will take Porsche SE management positions, leaving Porsche SE a 50.7% stake in VW Group. Porsche was brought under the VW umbrella and lost its management control over VW.

2.3.3. BMW AG

BMW – Bayerische Motoren Werke was founded in 1917 as BMW GmbH, originally established one year earlier as BFW, which stands for Bayerische Flugzeugwerke. BFW specialized in the aircraft manufacturing and the production was continued by BMW under a new logo. The BMW know-how was initially focused on the production of aircraft engines, which later complemented railway and car engines. The BMW started its motorcycle production in 1923 and a car production in 1928. During the WWII, BMW served as a main supplier of the aircraft engines to the German army. BMW is headquartered in Munich, Germany. The primary business objective is the development, manufacture and sale of engines as well as of all vehicles equipped with those engines.

The BMW Group is subdivided into three main divisions – the automotive, motorcycle and financial services division. The automotive division consists of three premium car brands: BMW, which manufactures passenger cars, plug-in electric cars, and racing cars; MINI, which specializes in Small premium-car production; and Rolls-Royce brand. The second division – a motorcycle division – consists of BMW Motorcycles and Husquarna Motorcycles, which were bought by BMW in 2007 and are operated under its original name. In addition, BMW provides a range of financial services towards its customers as well as dealers. The most common financial services such as credit financing or leasing are marketed to retail customers under the brand name Alphera. General banking and insurance services are then offered to dealers. The automotive division accounted for approx. 77.14% in terms of the overall revenue share, selling a total of 2 117 965 BMW, MINI and Rolls-Royce vehicles in 2014, which surpassed the two million units sold for the first time in history. Financial services have the second largest share in relation to revenues – approx. 21%. Finally, the motorcycle division contributes by less than 2 % in terms of revenues.

In 2014, BMW employed over 116 000 people worldwide and operates in more than 140 countries. BMW is a German public company and one of the world's most successful car producers.

2.3.4. Selected key economic indicators of concerns

In order to fully understand the difference between the examined conglomerates, the following table provides key economic indicators in the fiscal year 2014.

Scheme 2-1: Basic overview of key indicators of Daimler, VW, and BMW

<i>FY 2014</i>	Total vehicle sales	Revenue (in billion €)	Net profit (in billion €)	P/E ratio	Number of employees
DAIMLER AG	2 545 985	129.87	6.96	9.62	279 972
VW Group	10 217 003	202.46	10.85	8.25	592 586
BMW AG	2 241 460	80.40	5.80	9.32	116 324

Source: consolidated financial statements, Guru Focus database (P/E ratio)

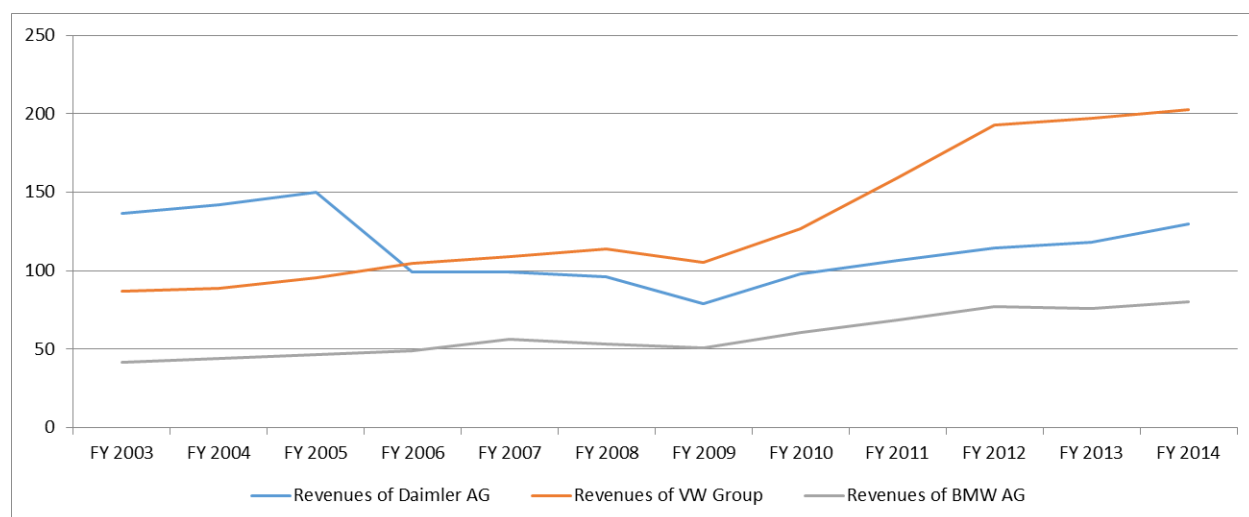
It is quite obvious the examined companies, which are the leading German car makers, significantly influence the German economy. If I was to evaluate their joint annual revenue in 2014, which amounted to €412.73 billion, such revenue is equivalent to the gross domestic product of Poland, which amounted to €413.13 billion in 2014. Poland has the 8th largest GDP in the European Union as a country. In comparison to the gross domestic product of the Czech Republic, which amounted to approx. 155 billion euros in 2014, the joint annual revenue of conglomerates was 2.7 times bigger the same year. How market treated car manufacturers before, during and after the financial crisis will be analyzed in the following chapter. However, it is important to realize the size and strategy of these companies. Volkswagen sells the highest number of vehicles per year, approx. four times more than Daimler and 4.6 times more than BMW. It is a volume manufacturer, focusing on a mass market in comparison to Daimler and BMW, who target rather a market for premium cars. Therefore revenues and net profit of VW are on one hand greater due to the size of the company and the number of sold cars. On the other hand, its revenue is just 1.56 times bigger than the revenue of Daimler, although VW sells approx. 4 times more vehicles. Revenue of VW is then 2.52 bigger than that of BMW, which is the smallest manufacturer in terms of the size and the number of employees. With regard to net profit, VW net profit is 1.56 times bigger than the profit of Daimler and 1.87 times bigger than net profit of BMW, which makes BMW stronger in terms of net profit, although BMW sells far lower number of vehicles in comparison to VW. The factor influencing this is the operating margin of BMW, which accounted for 11.34% in 2014, in comparison to Daimler, which

achieved operating margin of 7.23% and VW, which scored 6.27%.⁵ In general, the market for premium cars scores higher operating margins. The company must however produce a high-value model mix in order to excel. In 2014, operating margin of BMW for its automotive segment, which consists only of premium cars, came in at 9.64%. This result fulfills BMW target range of EBIT margin for automotive segment of eight to ten percent (BMW annual report, 2014). The operating margin of Mercedes-Benz Cars, which is a premium flagship brand of Daimler, stood at 7.95% in 2014, which is significantly lower than the result of BMW⁶. Audi, which could be perceived as the premium flagship brand of VW, achieved the operating margin of 9.57% in 2014, which is almost comparable to BMW. The sale of Audi amounted to 1.4 million of vehicles out of 10.2 million of VW in 2014.⁷ Which is a significant number but VW still trades most of its sales at a discount achieving on one hand lower operating margin.

Price earnings ratio is also included in the basic evaluation of conglomerates as it represents the price that market investors are willing to pay for the company's stock. This ratio generally helps investors assess the future development of the company. In 2014, investors put a lot of faith into all companies as their P-E ratio was quite high. Daimler traded at 9.62 times the expected next year's earnings, followed by BMW with its P/E ratio of 9.32 and VW, which is only slightly cheaper than the other two conglomerates with its P/E ratio of 8.25.

The following chart shows the development of revenues throughout the examined period.

Graph 2-1: The Revenue development in billions of euros



Source: own

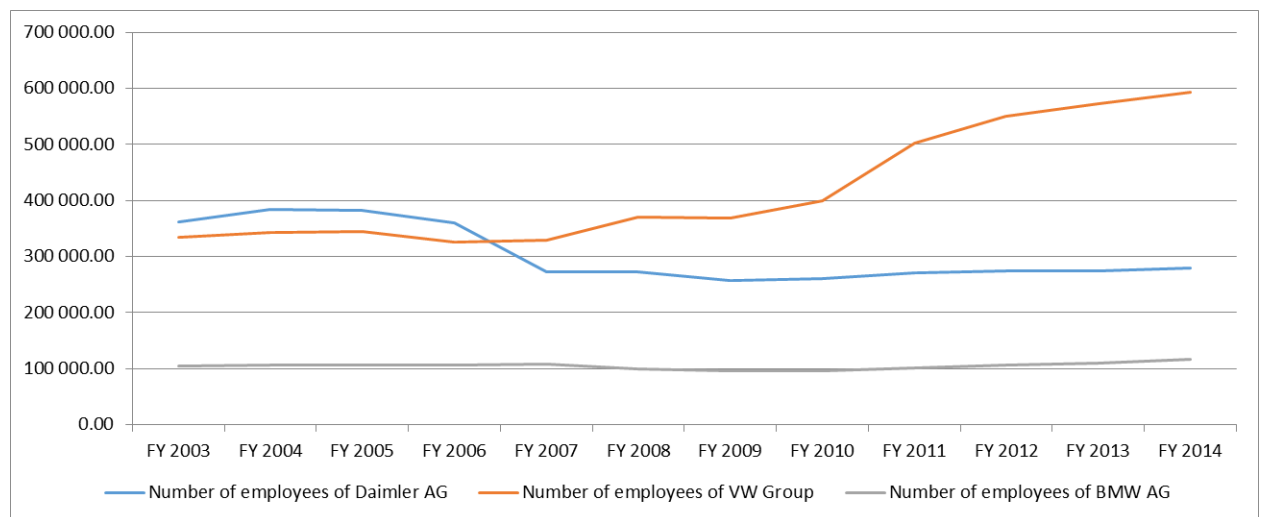
⁵ Operating margins calculated with a help of a formula: EBIT/Net revenues.

⁶ Calculations based on the EBIT and Revenues figures for Mercedes-Benz Cars division obtained from the consolidated financial report of Daimler AG 2014.

⁷ Calculations based on the EBIT and Revenues figures for Audi obtained from the consolidated financial report of VW Group 2014.

The previous as well as the following chart complement the view on the examined conglomerates and their development. In relation to the volume of sales, revenues have been significantly increasing since 2010. The trend line of DaimlerChrysler firstly declined as a result of the loss caused by Chrysler. The revenue development stagnated and also decreased due to the financial crisis. After the recovery from the economic and financial downturn, VW's revenues have been notably increasing, making VW one of the largest manufacturers in the world. In terms of vehicles sold, VW reached the second rank in 2014 when it sold over 10.21 million of vehicles and surpassed General Motors, which fell from the second to the third rank position that year. The first position belonged to Toyota with its 10.23 million of sold vehicles in 2014, which is almost the same as VW. The revenues of Daimler and BMW have also been increasing, which showed that German car manufacturers not only recovered relatively quickly after the economic downturn, but they can also cope with adverse economic environment.

Graph 2-2: The number of employees



Source: own

When evaluating the development in the number of employees, BMW recorded almost no change in the amount of employed people and has always belonged to the “smallest” car manufacturer out of the three conglomerates. Regarding the employee development of Daimler AG, the amount of employees fell in 2007 as DaimlerChrysler terminated its merger by the sale of Chrysler. Compared to Daimler and BMW, the number of people employed by VW has been dramatically increasing as the group started performing well after the crisis. The most visible change happened between 2010 and 2011, when the number of employees rose by 25.6% from 399 381 to 501 950. The major impact leading to this change was caused by the consolidation of Porsche and MAN brands together with the establishment of new production facilities and expanded production volumes in Germany and abroad.

In conclusion, VW represents the largest German manufacturer in terms of sold vehicles, the number of employees and achieved profits. Daimler, given its smaller size in relation to the number of employees, sells premium cars, and scores quite high earnings, which are still obviously lower than those of VW. BMW, which is the smallest manufacturer in relation to the number of employees, scores relatively high earnings thanks to its flotilla of premium cars.

3. The Comparative Study on Daimler AG, Volkswagen Group & BMW AG

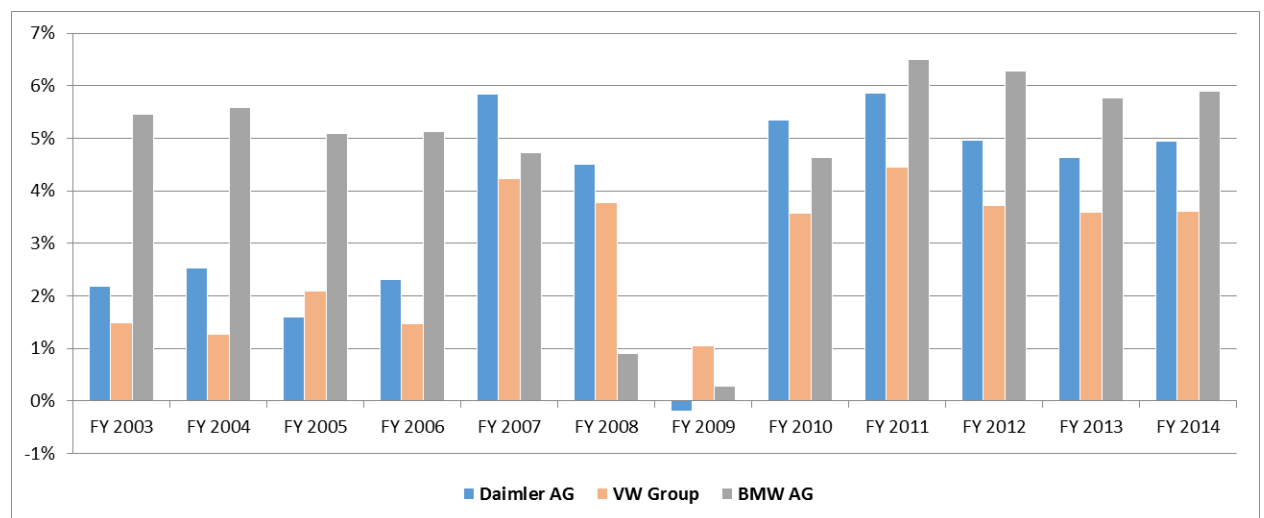
The aim of this part is to closely look at the financial performance of all three conglomerates in the past eleven years, respectively from 2003 to 2014. The goal is to explore the trend of the overall financial behavior with a help of the financial analysis searching for an industry benchmark. Furthermore, the emphasis will be placed on the period of financial crisis. Cyclical industries such the automotive industry reflect the global economy. Therefore it is anticipated that the financial performance will worsen in all of the examined aspects such profitability, liquidity, solvency etc. The chapter will also focus on the bankruptcy and credit scoring models, which will be applied to all three companies, and finally, the economic value added will conclude this part. The hypothesis is following: the world financial crisis had significant consequences and very negative influence on profits, sales and other financial aspects of the German automotive sector.

3.1. Ratio Analysis

3.1.1. Profitability of concerns

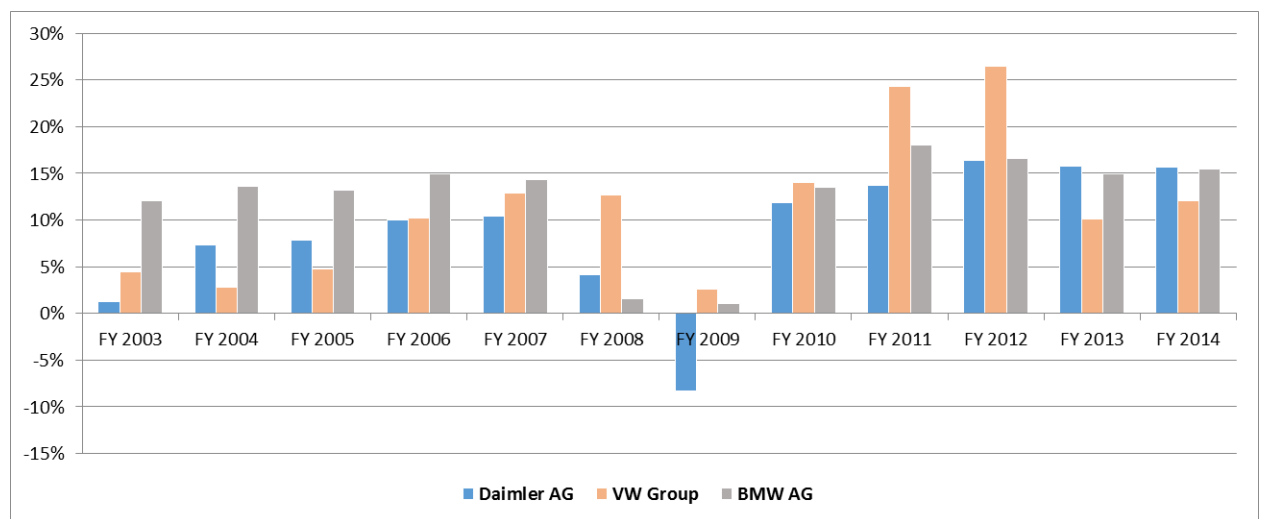
The major benefit of profitability ratios reflects the ability of an entity to generate profits on invested capital. The following two graphs illustrate return on assets and return on equity of Daimler, VW and BMW.

Graph 3-1: ROA



Source: own

Graph 3-2: ROE



Source: own

First of all, when comparing graphs above, we can see the major difference between ROA and ROE. ROA measures the ability to generate returns in relation to total assets, which includes liabilities/debt. ROE does not include debt and consequently reflects the profitability in relation to shareholder's equity. One assumption is that an entity, which uses higher financial leverage and therefore generally benefits from a higher share of debt, will be hit more by a financial crisis which causes a global economic downturn. Another assumption, which will be proved later on, is that automotive industry is one of the most capital intensive industries as there are high investment costs into technology, innovations, plants, production etc. The automotive industry generally relies on debt financing, therefore companies' ROE reaches higher values compared to ROA, which takes the company's debt into account, therefore achieving lower returns.

Both Daimler and VW were generating lower ROA in comparison to BMW till 2007. As BMW is significantly smaller manufacturer in terms of number of employees, volume of sales, total assets etc., BMW's profitability performance was notably better, which was influenced by its greater flexibility and higher operating margins from the sale of premium cars. Between 2003 and 2005, the profitability of Daimler was increasing. The low result of Daimler's ROE in 2003 was caused by unprofitable Chrysler. VW's performance was poor in the beginning of the examined period and slightly increasing till 2006. More information on factors influencing VW's profitability could not be obtained from the annual report until 2006 as VW did not disclose more detailed information than those necessary for fulfilling the financial reporting of German Commercial Code (HGB). In 2007, the world economy was growing and all manufacturers continued its operations successfully. BMW sales volume exceeded 1.5 million units for the first time ever in 2007, which represented a 9.2% increase over the previous year and BMW achieved

the highest net income since 2003, which accounted for 3,126.00 Mio of EUR. When compared to 2003, total assets of BMW rose by 145% and net income attributable to all shareholders rose by 161% in 2007.

The year 2007 became a milestone for Daimler as well, as the group DaimlerChrysler ended one of the least successful mergers and re-oriented itself completely. The majority of interest, in particular 80.1% stake in the Chrysler Group, was transferred to a private equity investment company. The Chrysler Group represented a money losing unit for the conglomerate, and although Daimler, to which the company's name was changed, operated after this event with fewer assets, which declined by 37.93% compared to 2006, total liabilities declined that year as well – by 46.27%, and the overall EBIT rose by 56.45% (net income by 6.28%). This situation explains a significant increase in Daimler's ROA in 2007. The total shareholders equity, on the other hand, did not change much – increased by 2.37% over the previous year. Therefore, when considering the percentage change in net income and total equity, which was not as significant compared to total assets and the operating profit, it is understandable that ROE did not increase as ROA in 2007. Daimler also changed its financial reporting from US GAAP to IFRS in 2007.

VW Group also benefited from the increased global demand for passenger cars in 2007 and generated sales revenue of almost 109 billion EUR, which resulted in more than three times greater operating profit in 2007 when compared to the previous year. Net income attributable to shareholders of VW Group rose by 50% over the previous year as well.

The two following years influenced by financial and economic crisis were crucial in terms of financial performance. Daimler generated lower returns in 2008 caused by lower revenues and greater operating expenses, which led to a significant decrease in operating profit as well as net income. The decline in total assets was not as important as the decline in profits. Furthermore, Daimler went through an exceptionally bad year in 2009, which resulted in a loss of 2.64 billion EUR. The sharp decrease in the company's earnings was caused by unit sales which fell in all vehicle segments by overall 17.68% over the previous year and by the negative impact of approx. 20% stake in Chrysler, which influenced Daimler's earnings by a loss of 294 Mio EUR. As a consequence, Daimler disposed of the remaining 19.9% ownership in Chrysler the same year. The negative results of EBIT and net income led to negative ROA and ROE as well. In 2010 and 2011 Daimler was experiencing an ongoing upward trend in nearly all divisions, which helped generate high profits, resulting in ROA of 5.35% in 2010, and 5.87% in 2011. Since 2012 ROA of Daimler has been stable under around 5% and ROE around 16%, which is comparable

to ROE of BMW. Daimler's profitability performance significantly improved when compared to the period before the financial crisis.

Scheme 3-1: Daimler AG - key figures of Income Statement

In Mio of EUR	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014
Income Statement								
Revenues	99 399.0	95 873.0	78 924.0	97 761.0	106 540.0	114 297.0	117 982.0	129 872.0
(Cost of Sales)	-75 404.0	-74 314.0	-65 567.0	-74 988.0	-81 023.0	-88 821.0	-92 457.0	-101 688.0
Gross Profit	23 995.0	21 559.0	13 357.0	22 773.0	25 517.0	25 476.0	25 525.0	28.2
Operating Income = EBIT *	7 885.0	5 956.0	-244.0	7 273.0	8 690.0	8 084.0	7 815.0	9 388.0
Income Before Taxes	9 181.0	2 795.0	-2 298.0	6 628.0	8 449.0	8 116.0	10 139.0	10 173.0
Net Profit/Loss Before Minority	3 985.0	1 414.0	-2 644.0	4 674.0	6 029.0	6 830.0	8 720.0	7 290.0
Net Income	3 979.0	1 348.0	-2 640.0	4 498.0	5 667.0	6 428.0	6 842.0	6 962.0

Source: financial statements of Daimler AG

* Amounts in italics were not provided in official consolidated statements of Daimler AG; they were completed by the author of the thesis

VW experienced a sharp decrease in profitability in 2009. Its ROA amounted to 3.77% in 2008, which was still rather stable when compared to ROA in 2007, when returns on assets reached 4.23%. Return on equity was also good in both 2007 and 2008, when it reached almost 13%. In 2009 both profitability ratios dropped significantly – ROA equaled to 1.05% and ROE to 2.56%. The main reason for the decline was caused similarly as by Daimler – by extremely low operating profit as well as the overall net income. EBIT decreased by 70.71% in 2009 over the previous year and net income by almost 80%. Total equity increased just slightly and total assets kept increasing rather proportionally since 2003, both having not much influence on returns in 2009.

Scheme 3-2: Volkswagen Group - key figures of Income statement

In Mio of EUR	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014
Income Statement								
Revenues	108 897.0	113 808.0	105 187.0	126 875.0	159 337.0	192 676.0	197 007.0	202 458.0
(Cost of Sales)	-92 603.0	-96 612.0	-91 608.0	-105 431.0	-131 371.0	-157 522.0	-161 407.0	-165 934.0
Gross Profit	16 294.0	17 196.0	13 579.0	21 444.0	27 965.0	35 154.0	35 600.0	36 524.0
Operating Income = EBIT	6 151.0	6 333.0	1 855.0	7 141.0	11 271.0	11 498.0	11 671.0	12 697.0
Income Before Taxes	6 543.0	6 608.0	1 261.0	8 994.0	18 926.0	25 487.0	12 428.0	14 794.0
Net Profit/Loss Before Minority	4 122.0	4 688.0	911.0	7 226.0	15 799.0	21 881.0	9 145.0	11 068.0
Net Income	4 120.0	4 753.0	960.0	6 835.0	15 409.0	21 712.0	9 066.0	10 847.0

Source: financial statements of VW Group

VW Group experienced successful years after the financial crisis, net income increased from 6.835 billion EUR in 2010 to 15.409 billion EUR in 2011 and to 21.712 billion EUR in 2012. As seen from the table below, the most successful period was in 2012. The reason behind is the enormously huge number arising from share of profits from equity investments. In 2012 VW finalized the takeover of Porsche by the purchase of the remaining stake of 50.1%. Before the

global financial crisis hit in fall 2008 it was Porsche, rather a small car manufacturer compared to VW Group but on the other hand very much profitable and flexible in terms of operating utilization, that intended to acquire VW. As a result of the economic crisis, Porsche did not only fail to buy up VW, it ended up with enormous debts, shares dropped rapidly and Porsche faced liquidity crisis. VW Group took over Porsche instead. In 2012 the finalization of the buyout impacted profits that significantly increased. Total equity of VW has also dramatically risen, impacting results of return on equity. ROE amounted to 24.32% in 2011 and to 26.48% in 2012, which represented the highest number of all results of ROE of all three conglomerates for the past eleven years. In both 2013 and 2014, return on equity fell to 10.07% and 12.03% as a result of lower profits generated those years.

Scheme 3-3: Volkswagen Group - key changes 2011-2014

In Thousands of EUR	FY 2011	FY 2012	FY 2013	FY 2014
Income Statement				
Operating Income = EBIT	11 271 000.0	11 498 000.0	11 671 000.0	12 697 000.0
Profits/Losses from Equity Investments	2 174 000.0	13 568 000.0	3 588 000.0	3 988 000.0
Net Income	15 409 000.0	21 712 000.0	9 066 000.0	10 847 000.0
Balance Sheet				
Total Shareholders Equity	63 354 000.0	81 995 000.0	90 037 000.0	90 189 000.0

Source: financial statements of VW Group

When looking at the graphs of ROA and ROE at the beginning of the profitability chapter, the crucial decline in profitability of BMW was already in 2008, continued to be even lower in 2009. The lower car demand caused a steep decline in sales volume as seen from the table below. On the top of that, BMW was struggling with unfavorable refinancing conditions on international markets, resulting in higher cost of sales as well as higher operating expenses. When considering the effect of total equity on ROE, there was almost no influence as total equity did not change much in 2008 and 2009 in comparison to 2007. Total assets rose by 13.58% in 2008 over the previous year and changed only slightly in 2009, having also no significant influence on ROA in 2009. The inability to sell its premium cars was the key issue for BMW during the financial crisis. ROA amounted to 0.91% in 2008 and 0.28% in 2009. In 2010, ROA returned to its generating ability before crisis, and since 2011 it has moved around 6%. ROE fell more significantly to 1.60% in 2008 and 1.02% in 2009, returning to its normal course in 2010 again. Since 2011, BMW has been performing exceptionally in relation to both ROA and ROE as seen from the graphs above, since the company has been successfully selling its cars and making big profits, which summarizes the following table.

Scheme 3-4: BMW AG - key figures of Income Statement

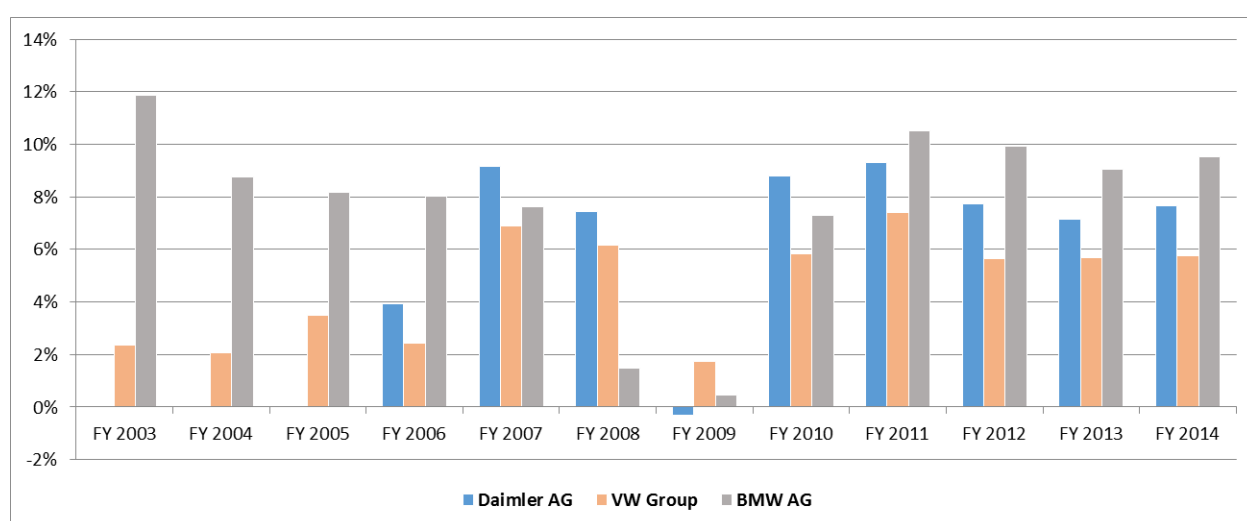
In Mio of EUR	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014
Income Statement								
Revenues	56 018.0	53 197.0	50 681.0	60 477.0	68 821.0	76 848.0	76 058.0	80 401.0
(Cost of Sales)	43 832.0	47 148.0	45 356.0	49 545.0	54 276.0	61 354.0	60 784.0	63 396.0
Gross Profit	12 186.0	6 049.0	5 325.0	10 932.0	14 545.0	15 494.0	15 274.0	17 005.0
Operating Income = EBIT	4 212.0	921.0	289.0	5 111.0	8 018.0	8 275.0	7 986.0	9 118.0
Income Before Taxes	3 873.0	351.0	413.0	4 853.0	7 383.0	7 803.0	7 913.0	8 707.0
Net Profit/Loss Before Minority	3 134.0	330.0	210.0	3 243.0	4 907.0	5 111.0	5 340.0	5 817.0
Net Income	3 126.0	324.0	204.0	3 227.0	4 881.0	5 085.0	5 314.0	5 798.0

Source: financial statements of BMW AG

In general, all companies struggled because of the lower sales volume performance as the demand for passengers car steeply declined during the financial crisis. However, German car manufacturers were able to reverse the course of their development quite soon despite the ongoing adverse economic conditions. In addition, the German government helped such development by implementing generous scrapping subsidies, which were already mentioned in the second chapter. To conclude returns on asset and equity, the estimated industry average benchmark for automotive manufacturers for 2012 provided by bizstats.com database (BizStats database, accessed 2015) is: ROA=5.38%, ROE=13.81%. According to our obtained data, ROA has been recently fluctuating between 4%-6% and ROE between 15%-18%. The exceptional years of VW Group in 2011 and 2012 should not be perceived as a trend.

When evaluating returns that are connected to capital provided by both shareholders and creditors as a long-term investment, return on capital employed should be used.

Graph 3-3: ROCE



Source: own

This ratio represents all long-term financial resources. The higher the ratio, the more efficient utilization of capital is exploited. As seen from the graph above, BMW returns on capital

employed exceed both two other conglomerates apart from the period connected to financial crisis, when the company was hit very badly, and the year 2007 when ROCE of Daimler surpassed the one of BMW as a result of the sale of Chrysler.

The last mentioned profitability ratio is net profit margin, which shows the ability of an entity to generate profit at a given level of sales. As the analysis should be rather profound, it will be mentioned later on when analyzing the DuPont equation. The operating margin will not be calculated in this thesis. It was however mentioned in the sub-chapter 2.3.4.

3.1.2. Liquidity of concerns

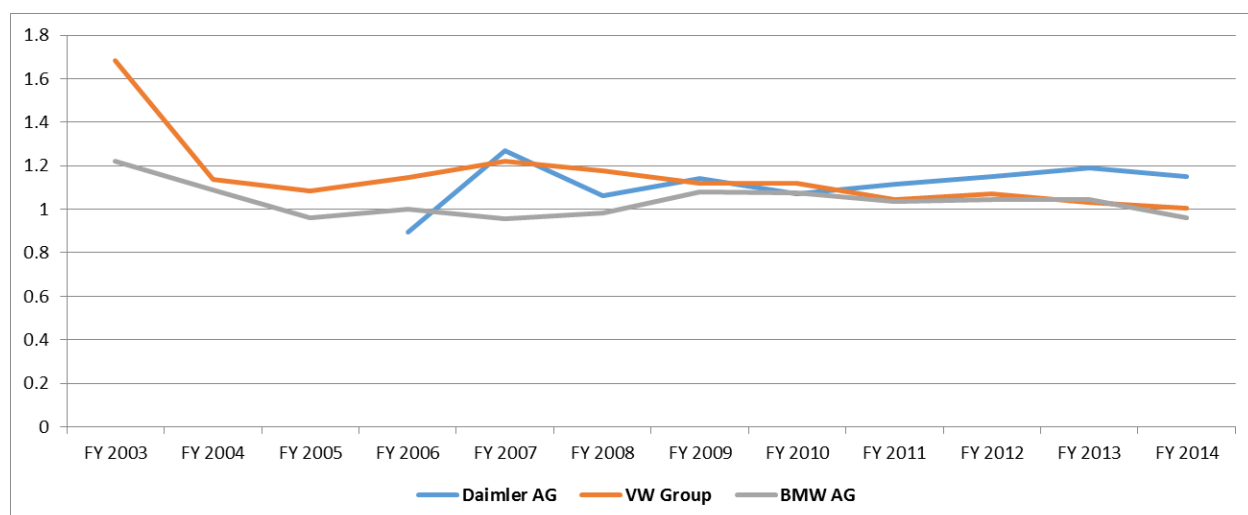
Liquidity ratios measure, whether a company is able to pay its short-term liabilities when due by its liquid assets or not. The possible strategies of managing current assets and current liabilities were mentioned in the theoretical subchapter 1.4.3. When looking at graphs below, it is obvious that all three companies pursue an aggressive strategy and are more risk oriented than risk averse. The value below 1.5 is considered as the aggressive strategy in terms of current ratio and the value below 1.0 is considered as the aggressive strategy in terms of quick ratio. Daimler has been providing relevant data since 2006. As a result, the graphic representation of the trend-line of Daimler begins later than in 2003.

Both line graphs of VW and BMW show a steep decline of liquidity ratios from 2003 to 2004. The adverse global conditions are the reason behind this. Both examined companies continued a successful course of their operations that year. However, the weakness of the US dollar against euro played a role at the time and reduced the balance sheet significantly – total current assets of BMW declined by 34% and total current assets of VW by 24% over 2003⁸.

When evaluating the effect of the financial crisis, there was no immense change. All three companies pursue a similar trend with regard to the management of assets towards short-term obligations. All companies have been slightly exceeding the value of 1 since the financial crisis with the exception of BMW AG in 2014. Hence, all manufacturers have been capable to pay its short-term liabilities with current assets apart from BMW in 2014, when its current ratio amounted to 0.96. Theoretically, in case of immediate liquidity crisis of BMW in 2014, the company would have to sell some of its long-term assets. If the liquidity is measured in relation to the quick ratio, companies have not achieved the short-term liquidity since 2004. The industry average data were 1.56 (current ratio) and 0.94 (quick ratio) in 2012 (BizStats, accessed 2015).

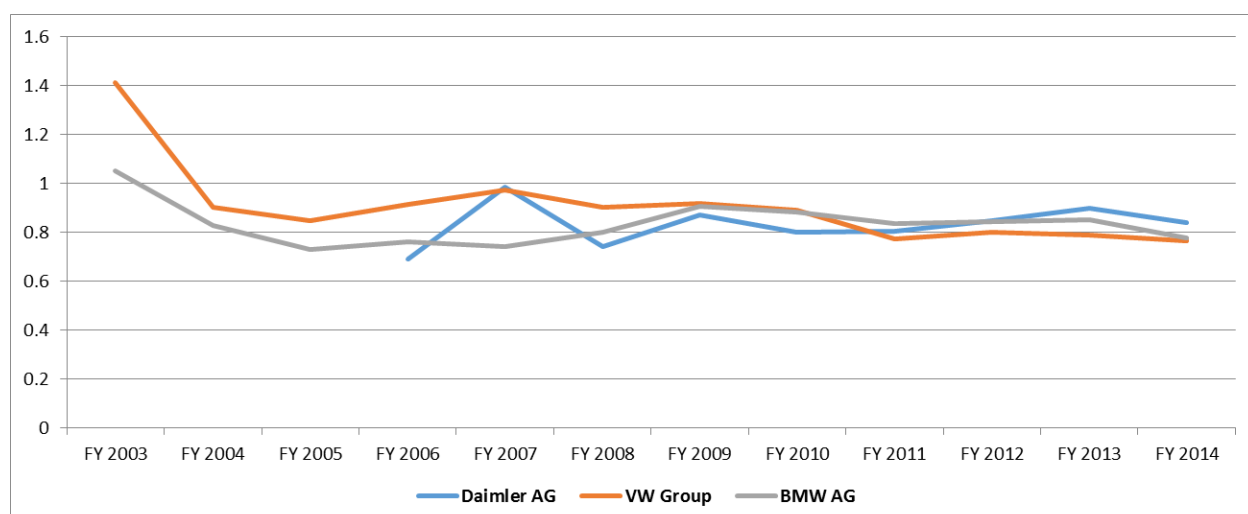
⁸ See ANEX: financial statements – balance sheet, receivables from sales financing

Graph 3-4: Current ratio



Source: own

Graph 3-5: Quick ratio



Source: own

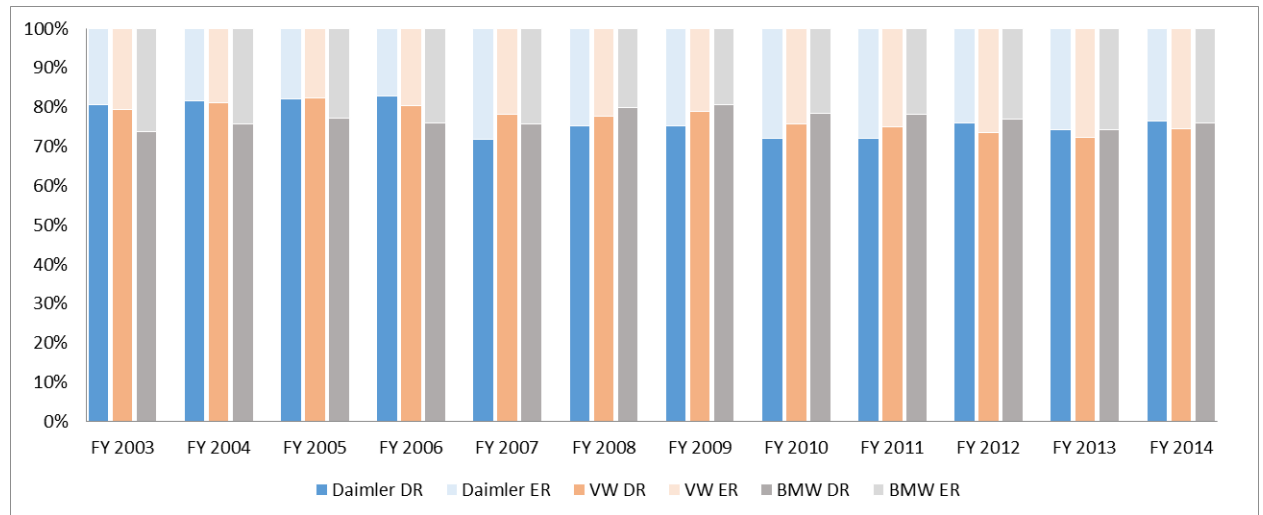
3.1.3. Solvency of concerns

Leverage ratios show the solvency of businesses. In other words, they analyze the risk of debt and the possible influence of debt on the long-term financial position. Thanks to solvency ratios we can analyze to what extent the capital structure of all three companies depends on external financing and what is the proportion of debt and equity in the company's structure. Benefits and risks which go hand in hand with the increasing debt were mentioned in the theoretical chapter.

The first presented graph is a stacked column bar chart, which helps explain the proportion of total assets financed with debt (dark columns) and the proportion of total assets financed by equity (bright columns). We may observe that automotive manufacturers take advantage of

financial leverage as they use quite a large amount of debt within their overall capital structure. Debt ratios of Daimler and VW exceeded even 80% in the first half of the examined period. Then ratios moderately declined before the crisis in 2007 and slightly increased as a result of the economic downturn.

Graph 3-6: Debt ratio versus Equity ratio

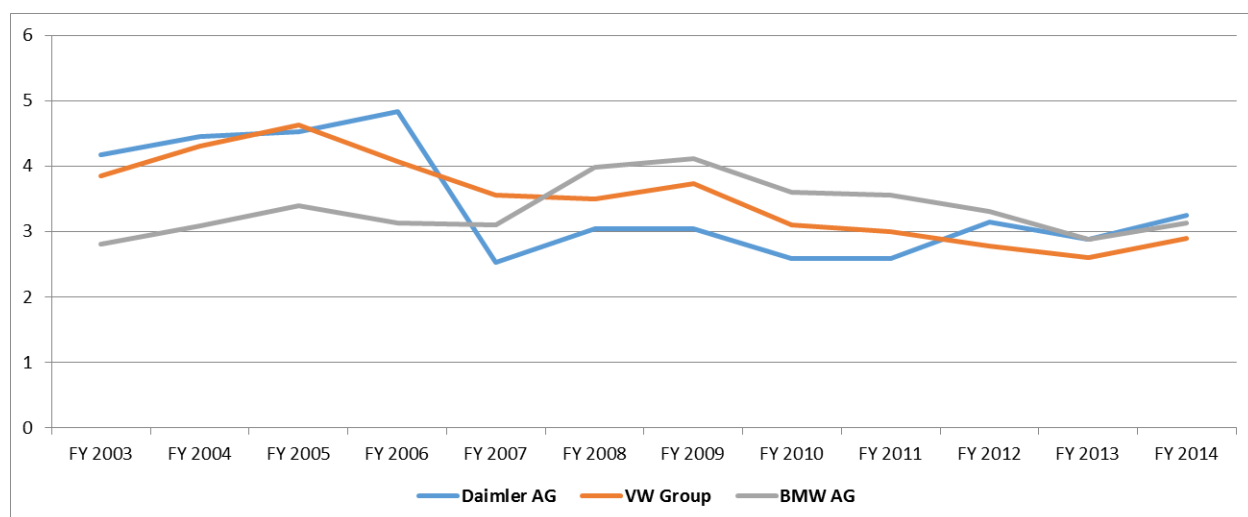


Source: own

The major issue of the financial crisis was the high debt, which business could not dispose of. Difficult environment conditions led to a steep decline in sales volumes and a rise in expenses and the need for cash. Consequently, manufacturers faced low or even negative annual profits.

Another financial stability ratio, which may help provide a view on the distribution of capital financing, i.e. the financial risk, is debt to equity ratio. The higher the ratio, the higher the risk of insolvency is. Thanks to the previous chart it is already clear that values definitely exceed 1, which would indicate an equal distribution of financing between creditors and shareholders. The explanation towards the following graph is therefore similar as to the previous one. Automotive conglomerates are financed more by debt, which was in 2014 three times as big as the share of equity – the debt ratios amounted to approx. 75%. In the beginning of the examined period, both Daimler and VW maintained notably higher financial leverage than BMW. Due to the adverse conditions of the financial crisis, BMW was forced to increase its debt. In 2014, conglomerates have quite similar, almost equivalent proportion of debt within its capital structure.

Graph 3-7: Debt to Equity ratio



Source: own

In order to provide a closer view on the period of financial crisis and the debt issue of automotive manufacturers, which would describe and illustrate the situation more thoroughly in relation to the operating profits at the time, the interest coverage ratio is used. It measures the number of times the company's operating income covers the interest payments. Before I focus on the ratio itself, I will mention the development of German manufacturers' credit rating. I chose the rating of Standard & Poor's. Their ratings range from 'AAA' to 'D'. The rating triple A reflects the strongest credit quality. In addition, S&P uses pluses and minuses to further complement the category, for example an A rating may be raised to A+ or fall to A-. To fully understand the development, S&P assigns outlooks. With regard to its long-term rating, which evaluates credit worthiness for liabilities with a term of more than one year, these outlooks may be positive, negative, stable or developing. The stable outlook indicates that a change is unlikely. Negative outlook suggest that the rating may be lowered, and a positive outlook suggests that the rating may be raised. The developing outlook is rarely used and describes uncertain situations, when the predictions are hard to make. In general, the higher the rating, the less likely it is that the rated company cannot meet its obligations, which are basically the interest and the principle. For this reason, I mention this topic in relation with the interest coverage ratio.

The following table provides an overview of the development. Data were obtained from the financial statements of car manufacturers and therefore correspond to the ending period of each year. BMW enjoys the best rating for most of the years except for the period of financial crisis. In 2009, during the economic downturn, S&P revised the outlook for all companies and changed it to negative. In 2010, VW's outlook was still assessed as negative, but Daimler's and BMW's outlook was changed to stable, although manufacturers remained in the same rating category. As

for the recent development, the A category into which companies currently fall is a reflection of a good financial performance, increasing revenues and profits.

Scheme 3-5: Standard & Poor's long term credit rating, Rating Outlooks, 2006 - 2014

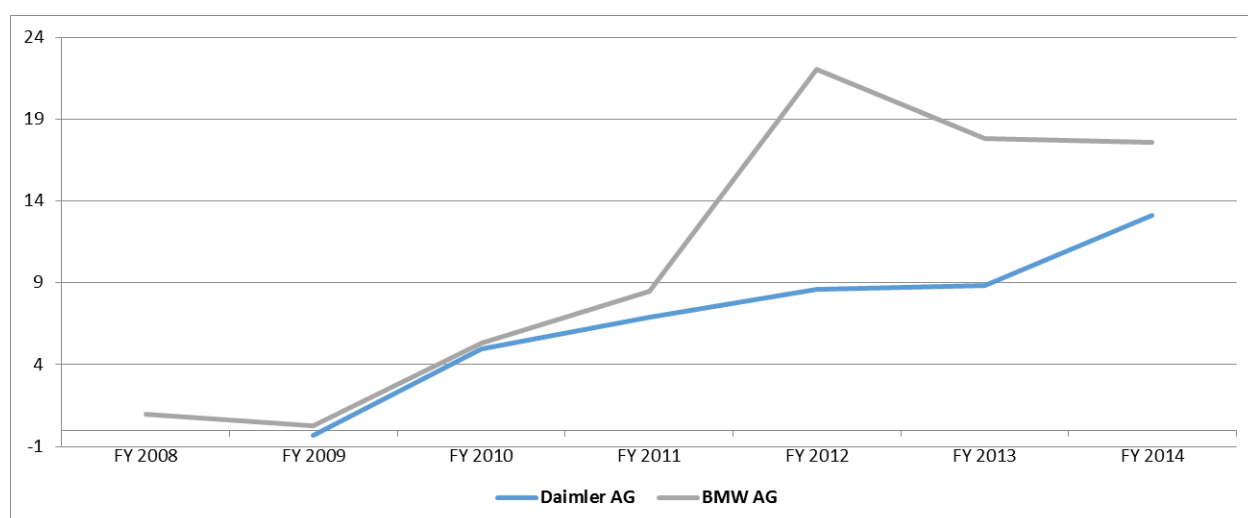
S&P	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014
DAIMLER	BBB	BBB+	A-	BBB+	BBB+	BBB+	A-	A-	A-
outlook	stable	stable	stable	negative	stable	positive	stable	stable	stable
VW	A-	A-	A-	A-	A-	A-	A-	A-	A
outlook	stable	stable	stable	negative	negative	stable	stable	stable	stable
BMW	A+	A+	A	A-	A-	A-	A	A+	A+
outlook	stable	stable	stable	negative	stable	positive	stable	stable	stable

Source: financial statements of Daimler AG, Volkswagen Group, BMW AG

The graph below shows that during the financial crisis, the value of interest coverage ratio was extremely low, which was connected to the worse credit worthiness of companies at the time. In 2009, BMW interest coverage ratio amounted to 0.29 and Daimler interest coverage ratio was even negative caused by negative EBIT. Data for previous years as well as data of VW interest expense were not provided, therefore complete analysis is missing. However, we may observe that since the complete downturn in 2009, the interest coverage ratio has kept increasing, and as seen from the table above, the rating outlook of companies has also improved. In 2012, it reached the value of 22.07 for BMW AG, which was caused by a significant decline in interest expense over the previous year.

In 2014, the interest coverage ratio of BMW amounts to 17.57 and the interest coverage ratio of Daimler to 13.13.

Graph 3-8: Interest coverage ratio



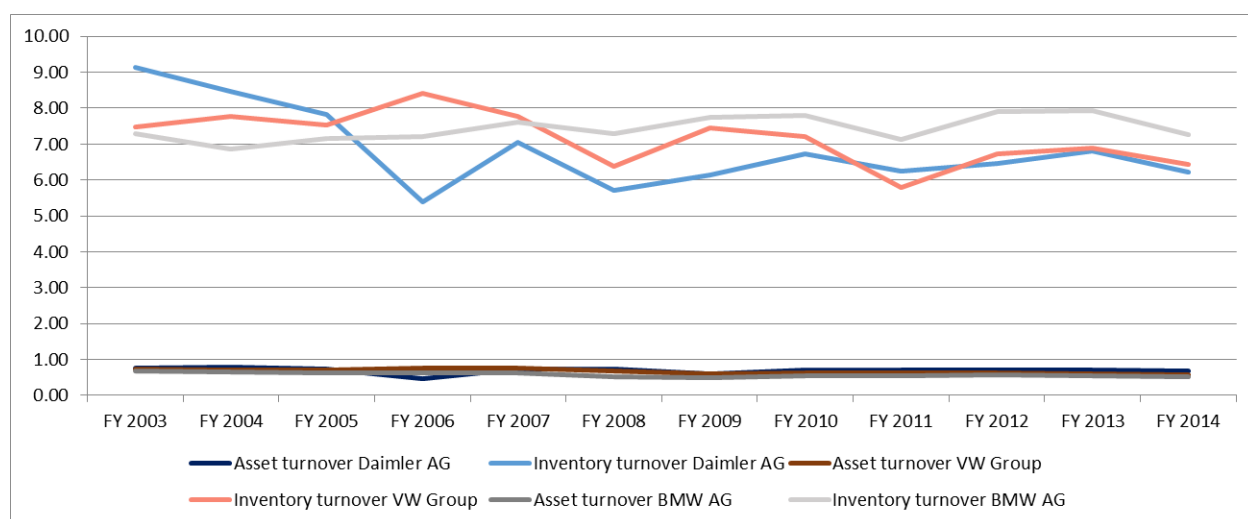
Source: own

3.1.4. Efficiency of concerns

The next section will cover operating efficiency ratios, which measure the activity of operation, in particular the utilization of assets throughout the year. Out of the variety of efficiency ratios, the focus will be placed upon total assets and inventory as a part of the current assets.

Asset turnover measures the entity's ability to produce an amount of sales for a given amount of assets. It is therefore considered for one of the most important activity ratios and it is generally desirable to have this ratio as high as possible. In case the management is incapable of a proper utilization of assets, it may lead to increasing expenses, e.g. for maintenance, administration etc. The graph below shows two ratios, asset turnover as well as inventory turnover. Asset turnover is illustrated by lines in the lower part of the chart. It is quite clear that the trend line of asset turnover does not reach even the value of 1. Such trend provides two important findings. First of all, asset turnover does not seem to be an important characteristic in terms of the analysis of the financial efficiency due to a stable trend. Second of all, automotive manufactures, which belong among the most capital intensive businesses, are characterized by a large amount of assets, therefore we should rather examine inventory turnover to be able to find out how rapidly inventories turn into receivables through sales.

Graph 3-9: Asset and inventory turnover



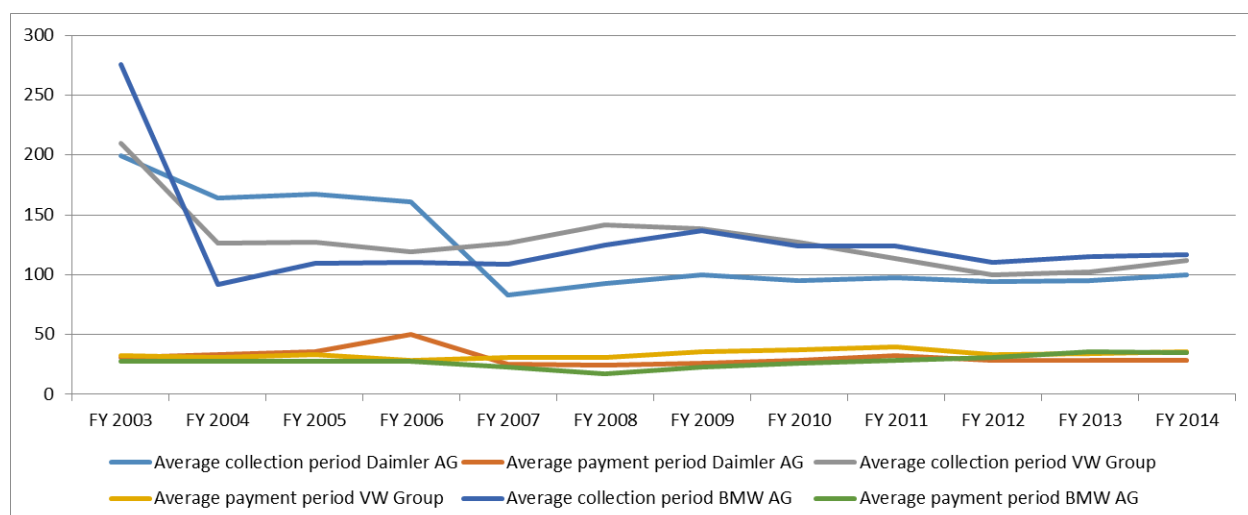
Source: own

Inventory turnover is represented by the upper lines in the graph above. Inventory turnover measures how many times a company's inventory is sold and replaced over a period. In comparison to asset turnover, total inventories are turned into sales many times a year. In the

beginning of the examined period the most successful in terms of this ratio was Daimler's performance surpassed by VW before the financial crisis started. Since 2008, the highest inventory turnover has belonged to BMW AG and has been fluctuating between 7 and 8. We may observe that companies have followed a similar trend line for the last few years, which is typical for cyclical industries and caused by the external environment. According to the BizStats database, the average industry inventory turnover reached 10.64 in 2012, which is higher than our observations by German automotive manufacturers (BizStats, accessed 2015).

Another ratio should be mentioned when analyzing the efficiency and the utilization of assets of automotive industry – the average collection period. This ratio measures the average number of days it takes to turn receivables from sales to actual cash. The average collection period significantly influences cash inflow of an entity and is typically high in automotive industry as car manufacturers have usually higher credit sales than companies in other industries. On one hand, higher average collection period of a company may attract more customers. On the other hand, higher amount of this ratio may cause that too much capital is tied up in assets. The assumption that the average collection period is relatively high is proven on the graph below. The last three years the average collection period of all concerns stabilized around 100 days, out of which BMW provides the most favorable credit sales for its customers. During the period of financial crisis VW had the highest ratio amounting to 141 days in 2008, followed by BMW AG with 125 days and Daimler with the lowest 93 days the same year. We may observe that there were exceptionally high values in the beginning of the examined period, which declined heavily due to the currency factors, in particular the weakness of the US dollar against euro. Sales volumes of VW just slightly increased, however, account receivables of VW decreased by 38.5%. The same situation happened to BMW, whose account receivables declined by enormous 64.4% that year. Daimler account receivables declined just by 14.5% as Daimler profited from its merger with the US automotive producer Chrysler at the time.

Graph 3-10: Average collection and payment period in days



Source: own

The average payment period ratio, also illustrated on the previous graph, measures the average number of days it takes for the company to pay its supplier. It is clear that the trend line is quite stable. The average payment period of all companies fluctuates between 30-40 days. In 2006, DaimlerChrysler had an exceptionally high average payment period of 51 days due to a decline in sales of overall 33.75% - truck sales declined by approx. 40% and car sales by approx. 24%, mostly due to fact that the gas prices were quite high and the high-margin sport cars as well as trucks became less popular that year. DaimlerChrysler even started an employee price promotion, which helped to acquire greater sales volumes in 2005, but had almost no significant influence in 2006 and consequently sales volumes decreased.

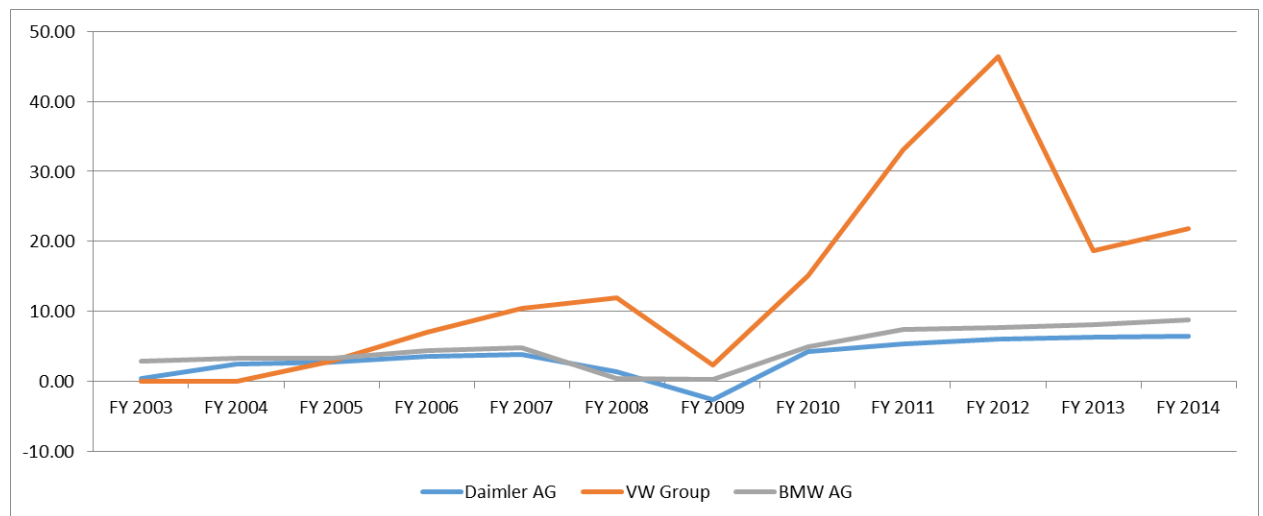
In conclusion, the automotive sector is typical for high credit sales and favorable credit collection period. In contrast to that, the payment period is significantly lower. This implies that car manufacturers have quite liberal credit policy. In general, companies should aim at longer payment policies towards its suppliers and other entities and shorter collection period, which is not the case of the automotive industry.

3.1.5. Market ratios of concerns

In order to get an idea of the extent to which shares are beneficial for shareholders as long-term investments, the earnings per share ratio is used. Shares represent a portion of the company's annual profit and earnings arising from the possession of shares are the number one interest to any potential investor, and obviously the shareholder himself as well. The calculation

of basic earnings per share is based on the average number of shares outstanding and the net profit attributable to shareholders of a particular company – exclusive of minority interests.

Graph 3-11: Earnings per share in €



Source: own

The first observation that is obtained from the graph above is the overall higher EPS of VW Group than of its competitors. BMW and Daimler show similar development of the EPS trend line and furthermore a slight consistent growth since the financial crisis, when their share price dropped to -2.58 EUR per share by Daimler and to 0.31 EUR per share by BMW in 2009. BMW has been however achieving a higher EPS than Daimler as summarized in a table below, 8.83 EUR per share by BMW in 2014 in comparison to Daimler's 6.51 EUR per share the same year.

On the other hand, the development of EPS of VW is completely different to the other two concerns and there is a simple reason behind it. The earnings per share were quite weak till the mid-2005, when Porsche began buying up VW shares. At the time Porsche claimed no other intention than to acquire a minority share of around 20% in VW Group. Still, thanks to this move the share price of VW increased and kept increasing as a result of the financial performance. In October 2008, when Porsche already owned 42.6% of VW shares, Porsche openly admitted to acquire the majority of VW Group up to 75% of stock during 2009. As a result, that particular day on October 27th 2008, the VW stock rose above 1,000.0 EUR per share (Dougherty, 2008) and VW Group became the most valuable company in the world. Although the next day the stock fell to approximately 500.0 EUR per share, it still made the VW Group valuable in 2008, significantly affected the market capitalization and caused the highest price of EPS that VW Group ever achieved. Volkswagen shares were however not immune to the overall downturn in 2009. The ordinary shares fell sharply in 2009. There were a few reasons for that. First of all, the

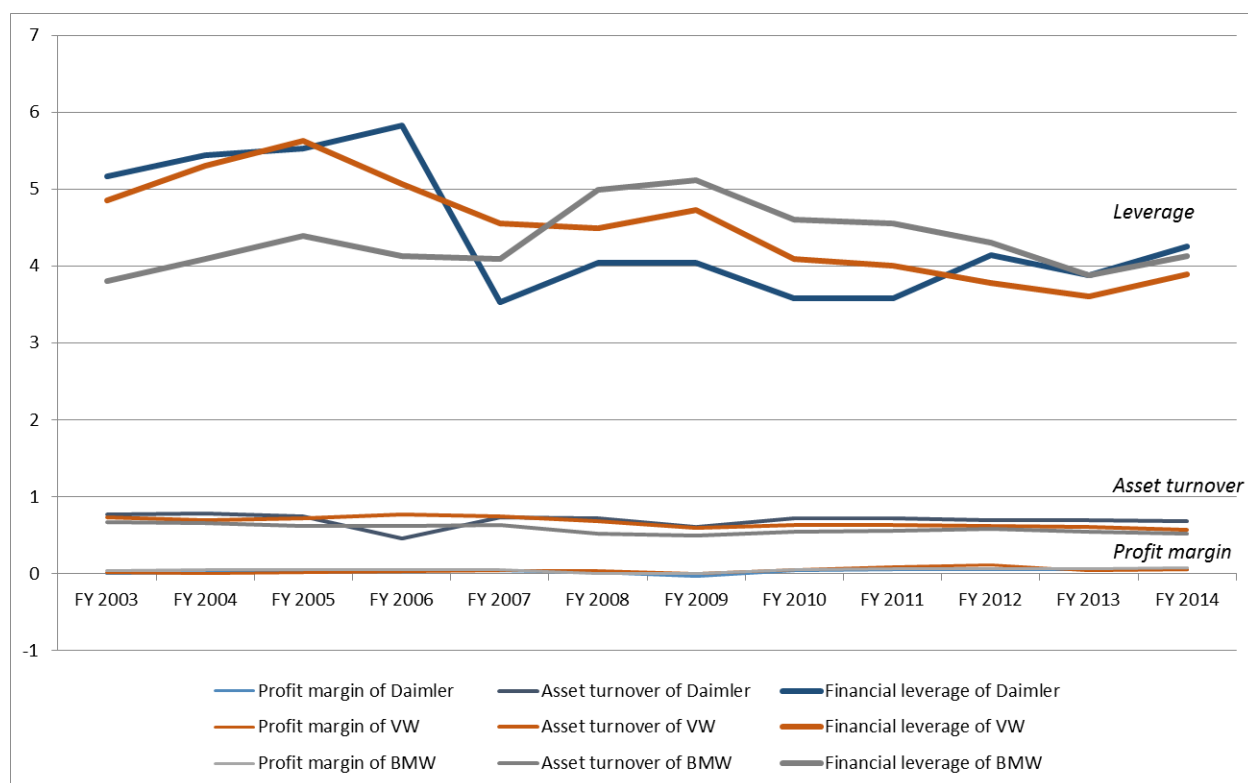
economic environment was to blame. Second of all, a further drop was caused by an expiration of options on VW ordinary shares, and lastly, the market was expecting that some of the ordinary share would have been replaced in the DAX by its preferred shares. Preferred shares of VW rose substantially in 2009, which cannot be recognized from the graph. It was mainly caused by a changed shareholder structure resulting from the creation of an integrated group with Porsche.

Anyhow, the downward trend of EPS caused by the financial crisis ended in the first quarter of 2010 and the VW earnings started increasing onward. Although the analysis is devoted to basic earnings per share, in case of VW Group, the preferred shares must be mentioned as they significantly influenced the development of the ordinary shares. The group immensely increased its equity capital in 2010 as a step in the creation of the integrated group with Porsche. Under this measure, almost 65 million of new VW preferred shares were issued which consequently strengthened VW financial stability, improved market capitalization and bolstered VW ratings. The healthy corporate results led to positive development of both preferred and ordinary shares. Some of the ordinary shares were replaced by preferred shares in December 2009, which brought an overall positive performance. Although ordinary shares kept increasing at a slower pace, the optimistic development resulted in a creation of new ordinary shares in 2010 as many employees converted their subscribed bonds into shares, increasing the subscribed capital of VW and consequently the total shareholders equity as well. Volkswagen kept performing exceptionally in this matter since. In 2014, the basic EPS reached 21.84 EUR per share, making VW Group extremely valuable for shareholders. The high values of EPS in 2011 and 2012 were caused by an increased net income due to the finalization of the Porsche VW Group integration as was mentioned earlier, which obviously dropped in 2013 when the trend stabilized as seen from the chart.

3.1.6. The DuPont decomposition

As mentioned in the theoretical chapter, the DuPont decomposition of ROE provides users with a better understanding of individual factors that are influencing the profitability ratio itself. Return on equity consists of financial leverage and return on assets, which is calculated as net profit margin times total asset turnover. On the chart below, we may see a proportional distribution between these factors.

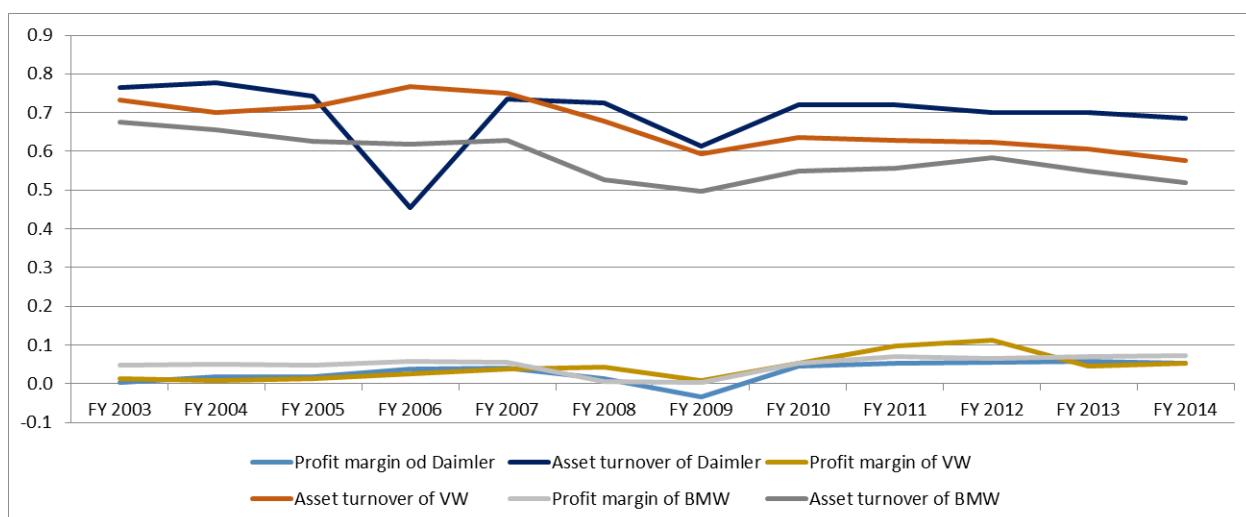
Graph 3-12: The DuPont decomposition



Source: own

First of all, we may observe that ROE is largely influenced by the financial leverage – the component of equity in the equation is crucial, which explains the significant difference between return on assets, which was generally lower when analysing the profitability of concerns, and return on equity. Return on assets is influenced more by the asset turnover in the automotive industry, which according to a scheme 1-8 puts the company into a position, where manufacturers compete on the competitive constraint on the market. It might be on one hand surprising as the automotive industry is quite capital intensive with a large portion of fixed costs. Still, when compared to the US automotive industry average, the European manufacturers achieve rather higher net profit margins. In 2014, the automotive industry benchmark for US automotive groups amounted to 3.16% in average (Damodaran, 2015), which is lower in comparison with Daimler and VW. They achieved both 5.36% in 2014 and BMW AG, which scored the highest net profit margin of 7.21%. Although the trend recognized from the graph seems to be stable in relation to both profit margin and asset turnover, profit margins as well as asset turnover fluctuated in the examined period, and therefore these two factors are illustrated once more on the graph below.

Graph 3-13: Profit margin compared to Asset turnover



Source: own

Except for the period of financial crisis and exceptional years of VW in 2011 and 2012, BMW profit margin exhibited the best profit margin in terms of the stability of the trend. Unlike Daimler and VW, BMW did not fail to the pressure of the adverse economic conditions in the beginning of the examined period, and on the top of that, BMW did not use as high financial leverage as its competitors at the time, which would otherwise help increase the overall ROE even more. As a result of the crisis, BMW was forced to increase its financial leverage during 2008 and 2009. Financial leverage of all companies kept more or less slightly declining since the financial crisis, increasing just little over 2014. The asset turnover moderately decreased during the economic downturn. It increased however already in 2010. The drop in Daimler's asset turnover in 2006 represented a reflection of a steep decline in sales. The profit margin, in particular net income, represented the factor influencing the higher values of ROE after the crisis. Low values of profit margin, in case of Daimler even negative value of profit margin in 2009, caused low/negative value of return on equity. The detailed overview of the fluctuating profit margin is further seen from the table. Since 2010, profit margin of all companies started rising. VW achieved exceptionally high values of profit margin in 2011, which amounted to 9.67%, and in 2012 amounted to 11.27%. This was caused, as mentioned earlier, by the final steps of the integration with Porsche – sales doubled, capital increased and net income skyrocketed. In 2014, the highest profit margin belonged to BMW. ROE of BMW amounted to 15.49% in 2014. Daimler reached ROE of 15.62%. Its lower profit margin was compensated by higher asset turnover. In 2013 and 2014, return on equity of VW was caused by a steep decline in net income as sales just moderately increased over the previous year in 2012. Net income

however decreased only as a consequence of the high value of net income in 2012, which surged due to the equity investments in Porsche of 13.57 billion EUR that year.

Scheme 3-6: ROE basic decomposition

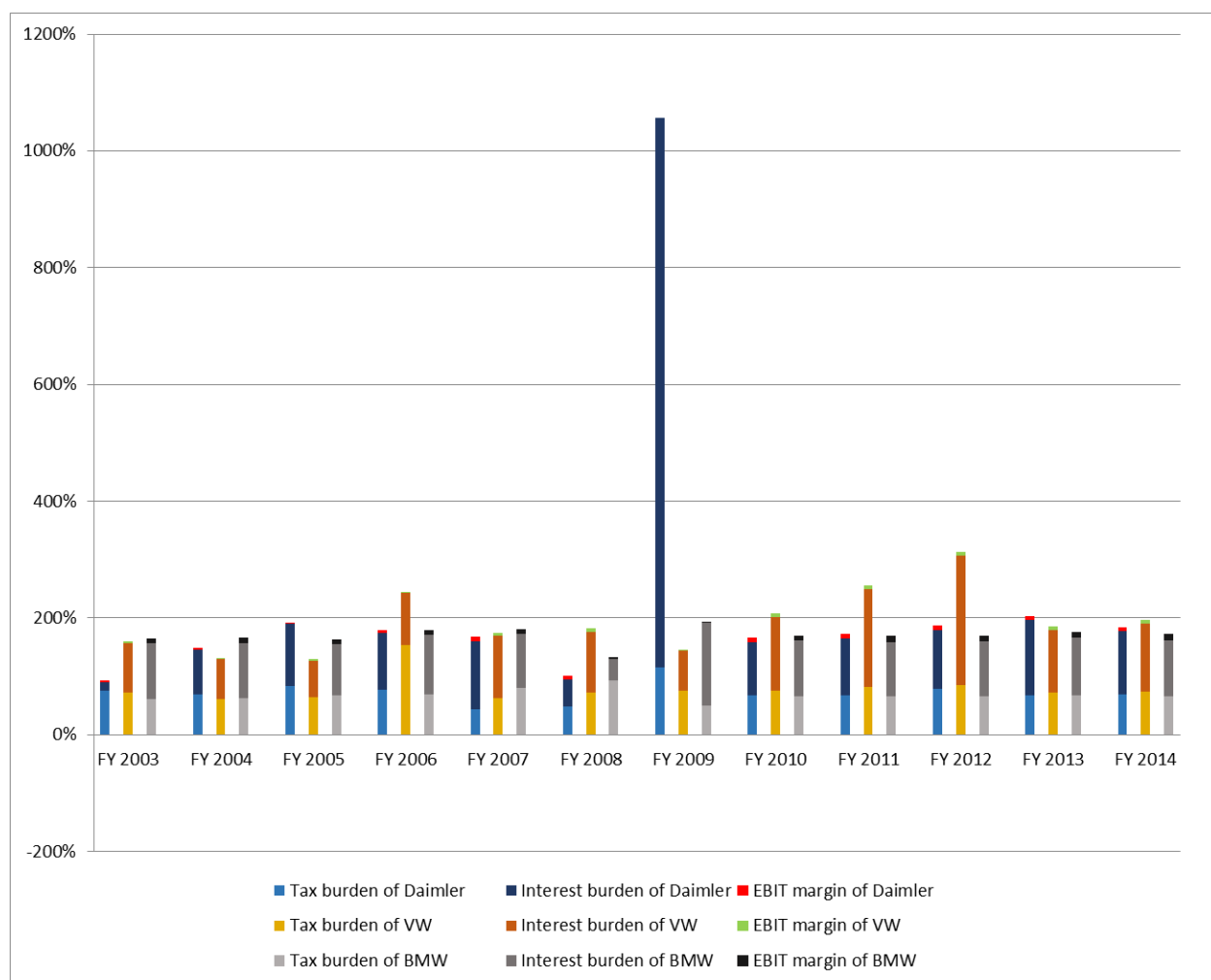
	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014
DAIMLER												
Profit margin	0.33%	1.74%	1.90%	3.77%	4.00%	1.41%	-3.34%	4.60%	5.32%	5.62%	5.80%	5.36%
Asset turnover	0.77	0.78	0.74	0.46	0.74	0.73	0.61	0.72	0.72	0.70	0.70	0.68
Leverage	5.17	5.45	5.53	5.83	3.53	4.04	4.05	3.58	3.58	4.15	3.89	4.25
ROE	1.30%	7.35%	7.81%	10.03%	10.41%	4.12%	-8.29%	11.85%	13.71%	16.34%	15.78%	15.62%
VW												
Profit margin	1.26%	0.76%	1.18%	2.62%	3.78%	4.18%	0.91%	5.39%	9.67%	11.27%	4.60%	5.36%
Asset turnover	0.73	0.70	0.72	0.77	0.75	0.68	0.59	0.64	0.63	0.62	0.61	0.58
Leverage	4.86	5.30	5.63	5.07	4.55	4.49	4.73	4.09	4.00	3.77	3.60	3.89
ROE	4.46%	2.83%	4.74%	10.20%	12.90%	12.71%	2.56%	14.03%	24.32%	26.48%	10.07%	12.03%
BMW												
Profit margin	4.69%	5.06%	4.80%	5.85%	5.58%	0.61%	0.40%	5.34%	7.09%	6.62%	6.99%	7.21%
Asset turnover	0.68	0.66	0.63	0.62	0.63	0.53	0.50	0.55	0.56	0.58	0.55	0.52
Leverage	3.81	4.09	4.39	4.13	4.09	4.99	5.12	4.60	4.55	4.31	3.88	4.14
ROE	12.06%	13.56%	13.19%	14.99%	14.38%	1.60%	1.02%	13.49%	18.01%	16.61%	14.91%	15.49%

Source: own; based on financial statements

Since the profit margin was the main factor that influenced the negative development of ROE during the crisis, the DuPont analysis completes a further examination of the actual three components, which form the profit margin itself – tax burden, interest burden and EBIT margin.

The following graph illustrates that the profit margin is basically influenced by tax and interest burden. The performance of Daimler in 2009 is quite interesting. The company recorded a negative net interest result. In 2008, the company recorded net interest income of €65Mio, which fell to negative €-785Mio in 2009 as a result of maintaining higher gross liquidity combined with higher financing liabilities. The main issues were a decreased level of interest on investments as well as increased risk premiums on borrowing, and finally lower expected returns on pension plan assets (Daimler AG annual report, 2009).

Graph 3-14: The net profit margin decomposition



Source: own

In conclusion, ROE of all conglomerates has been rather stable in the past few years and reached quite positive values, which is a good sign for the investors since the global economic and financial crisis.

3.1.7. Cash flow analysis of concerns

Cash flow analysis is a key component that completes the company's financial health analysis. Sustainable cash and overall positive cash flow is crucial and important for business owners, investors, management, or even employees. Cash flow analysis is rather a complex tool and users must understand it well to be able to make conclusions. Total cash flow from operating activities, which is highlighted in orange in the tables below, refers to cash, which is generated by an entity's core business activities. It is essential to generate positive operating cash flow. Only then the company's capable of making profit as well as covering its other operations, such investments, financial activities etc. Total cash flow from investing, which generally covers the

changes in the purchase or the sale of long-term assets such property, plant, and equipment, intangibles, the acquisition or the sale of debt and equity instruments etc. may be positive or negative, none of that is inevitably bad – the sale of long-term investments is increasing the company's cash and users should be able to recognize, whether assets are sold because there is no need of a further use of the assets or because the company needs cash, on the other hand, the purchase of long-term assets may represent a significant investment, which causes a cash outflow, therefore negative cash flow, but may yield profits and the inflow of cash in the future. The cash flow from investing represents an extension of resources, which generate cash. Total cash flow from financing covers e.g. processes from issuing shares, cash payments for acquiring or redeeming shares, generally cash repayments or proceeds from issuing debentures, loans, notes etc. It is the extent to which investing has been financed. Negative TCF from financing can for example either mean that the company is repaying for its debt or that the company repurchases stock or make dividend payments, which is rather positive from the owners' point of view. Regarding to the three examined conglomerates - global automotive manufacturers, financing activities may be also represented by flows from hedging the currency risks of financial liabilities. To sum up, the cash flow analysis is a true complex tool, by which users should not fall easily to conclusions. The analysis will mostly focus on the cash flow from operations, whether it was positive or negative, the change in the overall cash flow and possible movements to sideways as for a throughout analysis of TCF from investing and financing further information would be needed.

3.1.7.1. Cash flow analysis of Daimler AG

When looking at the table below, total cash flow from operations was positive and Daimler was performing well in relation to its operating cash flow management, with the exception of 2011, 2012, and 2014. In 2011, the major changes causing a negative cash flow from operations belonged to a higher volume of new business in leasing and sales financing as well as to high contributions to the pension funds, which are reflected as a change in assets and liabilities in the Daimler's cash flow statement (Daimler, annual report 2011).⁹ In 2012, the new businesses in the area of leasing and sales financing were also reflected in the negative CF from operations. Furthermore, there was a decrease of cash inflows from trade receivables, which was not offset by more favorable development of trade payables (Daimler, annual report 2012). In 2014, a negative cash flow was mainly affected by the realization of a growth strategy. There was an

⁹ See ANEX: consolidated statement of cash flows of Daimler AG

inventory increase as well as an overall increase in working capital. The new business in leasing and sales financing grew and there was also a cash outflow to the pension funds (Daimler, annual report 2014). In conclusion, the negative operating cash flows cannot be perceived wrongly, although the change in the overall CF was also negative in 2011 and 2014. I would also like to mention the only positive CF from investing activities in 2007 and extremely negative CF from financing, which was caused by the termination of the DaimlerChrysler Group and consequently by a sale of Chrysler. The annual change in the overall cash flow is relatively fluctuating.¹⁰

Scheme 3-7: Basic overview of Daimler consolidated cash flow statement

<i>In Mio of EUR</i>	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014
DAIMLER												
TCF From Operations	16 496	11 060	12 353	14 337	13 088	3 205	10 961	8 544	-696	-1 100	3 285	-1 274
TCF From Investing	-16 278	-16 682	-11 222	-15 857	20 537	-8 803	-8 950	-313	-6 537	-8 864	-6 829	-2 709
TCF From Financing	2 518	2 549	-1 513	2 396	-25 204	-2 915	1 057	-7 551	5 842	11 506	3 855	2 274
Cash/Cash Eq. (Beg of Period)	9 100	10 767	7 381	8 063	8 409	15 631	6 912	9 800	10 903	9 576	10 996	11 053
Change in overall CF	2 736	-3 073	-382	876	8 421	-8 513	3 068	680	-1 391	1 542	311	-1 709
Effect of Exchange Rates	-1 069	-313	620	-530	-1 199	-206	-180	423	64	-122	-254	323
Cash/Cash Eq. (End of Period)	10 767	7 381	7 619	8 409	15 631	6 912	9 800	10 903	9 576	10 996	11 053	9 667

Source: own; based on financial statements

3.1.7.2. Cash flow analysis of VW Group

Volkswagen showed a great performance in terms of the CF from operations. There was no negative operating cash flow throughout the examined period, which is desirable from the perspective of investors, creditors and the company itself. The pattern of the negative CF from investing may be compared to Daimler, which also showed a negative development. Since the financial crisis, there were many factors influencing the VW cash flow statement. I would like to point out the development during the financial crisis. In 2008, VW reached quite a low cash flow from operations, which was caused by a high volume of inventories and receivables as a result of the adverse economic situation. VW also used a lot of net cash in investing activities and approx. the same amount of cash for financing activities, which caused a negative overall CF that year. The milestone in VW performance happened a year later. In 2009, the investment in Porsche AG had a significant influence on the company, although the event was offset by a sale of a Brazilian commercial vehicles business to the MAN Group, therefore the CF from investing activities does not seem much changed. Cash was also released from the working capital as a consequence of the pronounced reduction in stockpiled inventories, which led to a rise of the CF from operations again. The CF from financing decreased over the previous year. It remained however still quite

¹⁰ Although all companies use the indirect method for the creation of the statement of cash flows, they differ in the use of versions of profits. Daimler even used three different profits within the examined period – net profit/loss till 2005, profit after taxation before minority till 2010, and profit before income taxes since.

large as the company experienced an inflow of cash due to the issuance of shares. As the change in the overall CF was immense, cash and cash equivalents amounted to €18.235 billion at the end of the reporting period, which was the highest amount since 2003. In conclusion, VW exhibits a satisfactory cash flow management.

Scheme 3-8: Basic overview of VW consolidated cash flow statement

In Mio of EUR	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014
VW												
TCF From Operations	8 717	11 494	10 810	14 470	15 662	2 702	12 741	11 455	8 500	7 209	12 595	10 784
TCF From Investing	-15 810	-15 079	-11 286	-12 898	-15 239	-11 183	-9 675	-11 048	-18 631	-19 482	-16 890	-19 099
TCF From Financing	11 423	5 968	-1 794	-114	178	8 123	5 536	-852	8 316	13 712	8 973	4 645
Cash/Cash Eq. (Beg of Period)	2 987	7 536	10 221	7 963	9 367	9 914	9 443	18 235	18 228	16 495	17 794	22 009
Change in overall CF	4 330	2 383	-2 270	1 458	601	-358	8 602	-445	-1 815	1 439	4 678	-3 670
Effect of Exchange Rates	-87	19	79	-59	-91	-113	190	438	82	-141	-462	294
Cash/Cash Eq. (End of Period)	7 536	10 221	7 963	9 367	9 914	9 443	18 235	18 228	16 495	17 794	22 009	18 634

Source: own; based on financial statements

3.1.7.3. Cash flow analysis of BMW AG

The BMW Group was adversely hit by the economic crisis. In general, BMW showed a positive cash flow from operations throughout the examined period. The CF from investing activities was also high and negative, therefore similar to Daimler and VW. As all companies are capital intensive, focused on technology and innovations, the cash outflow from investing is quite obvious. There was an increase in the CF from financing activities in 2008, thanks to which the cash and cash equivalents rose by a large amount. The same course of action took VW during the financial crisis. BMW cash flow statement is hardly evaluated without further information, which is just partly disclosed in the annual reports.

Scheme 3-9: Basic overview of BMW consolidated cash flow statement

In Mio of EUR	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014
BMW												
TCF From Operations	7 871	9 311	10 691	9 980	11 794	10 872	10 271	4 319	5 713	5 076	3 614	2 912
TCF From Investing	-11 231	-11 957	-11 963	-13 670	-17 248	-18 652	-11 328	-5 190	-5 499	-5 433	-6 981	-6 116
TCF From Financing	2 768	3 137	699	3 323	6 557	12 904	1 352	510	87	952	2 703	3 133
Cash/Cash Eq. (Beg of Period)	2 333	1 659	2 128	1 621	1 336	2 393	7 454	7 767	7 432	7 776	8 370	7 671
Change in overall CF	-592	491	-573	-367	1103	5124	295	-361	301	595	-664	-71
Effect of Exchange Rates	-82	-22	66	82	-46	-63	18	26	43	-1	-42	88
Cash/Cash Eq. (End of Period)	1 659	2 128	1 621	1 336	2 393	7 454	7 767	7 432	7 776	8 370	7 664	7 688

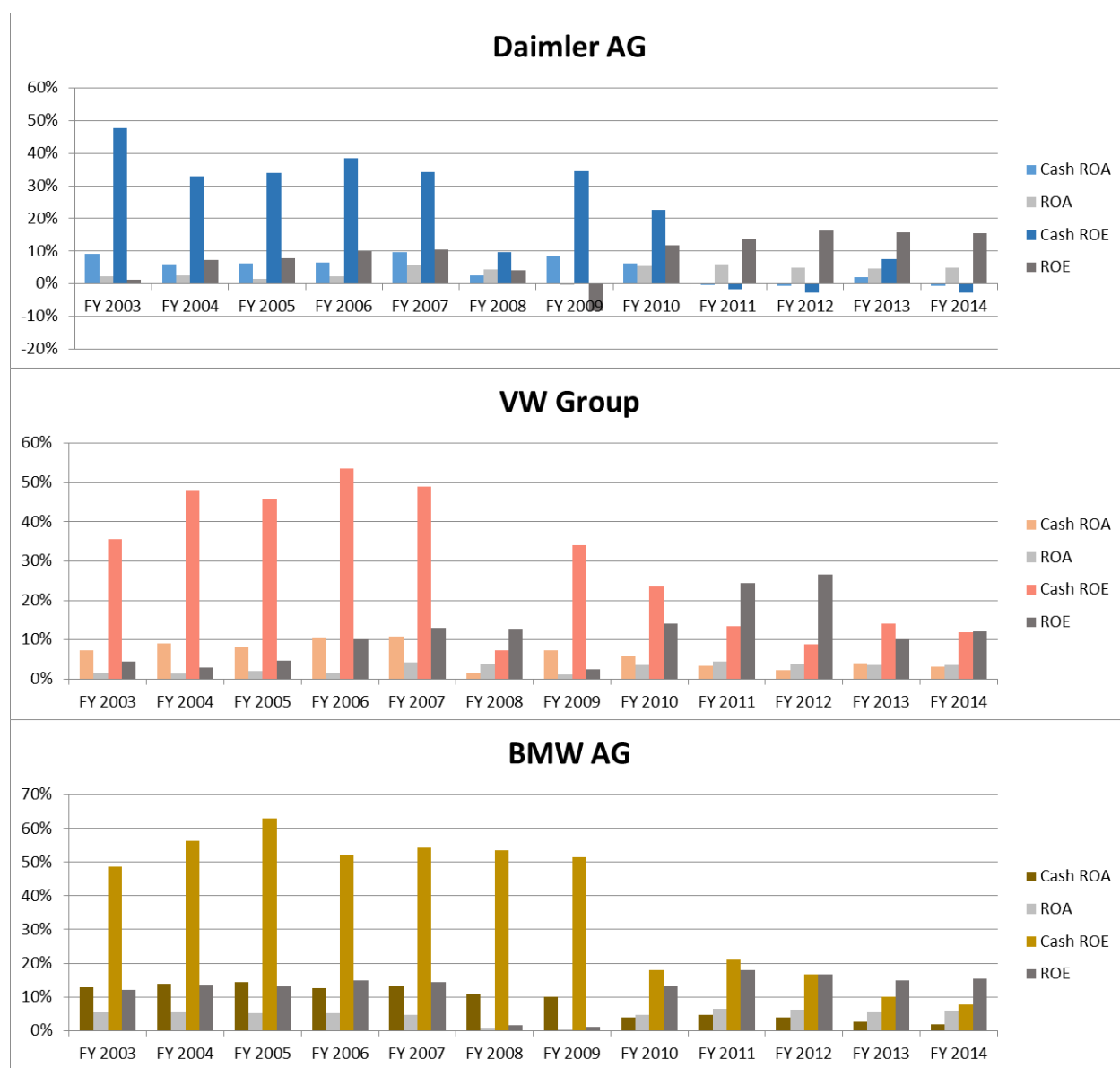
Source: own; based on financial statements

Overall, the cash flow management of all companies is rather favorable. The hypothesis of positive CF from operations, which was mentioned in the theoretical chapter, proved to be correct. In case there is a negative cash flow from operations, however, it does not have to inevitably indicate a catastrophic scenario as it might be just connected to the pursue of a new strategic thinking – as shown on the example of Daimler.

3.1.7.4. Cash flow ratios

In this subchapter only two cash flow ratios will be used as a supplement to the profitability ratios ROA and ROE. Like it was mentioned, cash ROA and cash ROE measure the operating cash, which is generated per euro of assets or per euro of shareholders' equity. It was assumed as a hypothesis in the theoretical chapter, that the CF from operations will be generally higher than net income in the numerator of basic ROA and ROE, therefore the cash returns should be under this assumption higher as well. The higher the ratio, the better it is. Furthermore, cash flows cannot be easily subjected to manipulation, and on the top of that, high cash ROE may also suggest that the obtained annual profit will be sufficient for the dividend payout.

Graph 3-15: The comparison of basic and cash returns



Source: own

The graph above shows a significant difference between the total operating cash flow and EBIT/net income, which both influence generated returns by a company. In the first half of the examined period, companies generated overall much lower profits but higher cash inflows from main business activities. This trend may be observed on all three graphs above. Subsequently, the economic downturn happened and the course of profitability changed, results were rather poor. Since 2010, there was an immense change in results of all companies as profits of automotive manufactures started heavily increasing as well as total assets and total equity, and cash inflows from operating activities fluctuated or declined. With regards to Daimler, we may see a drop in cash returns as operating CF was negative in 2011, 2012, 2014, and very low in 2013. On the other hand, net income of Daimler and therefore return on equity exceptionally increased. Regarding VW, the trend was similar. The merger with Porsche, which influenced profits in 2011 and 2012, resulted in high returns on equity, cash returns declined. With regard to BMW, we may also observe a significant decline in cash returns, which were caused by a rise of factors in the denominator and rather a decreasing operating CF in the numerator.

3.2. Bankruptcy and Credit Scoring Models

Bankruptcy and credit scoring models assess the financial situation of the company based on its financial performance. These models provide key information for owners and investors as they not only diagnose the company's performance, but they may also predict possible financial distress. The following section assesses the examined conglomerates in relation to the Altman model, the Taffler model and the Quick test of Kralicek.

3.2.1. The Altman's Z-Score

As already described in the theoretical part, the Altman model uses five financial ratios, which are subsequently weighted by specific coefficients. The greatest weight is assigned to the X3 indicator, which looks into the productivity of the company's assets while abstracting from leverage factors as well as tax; the weight is in other words placed on return on assets of the enterprise. The second most important ratio in terms of weight is also connected to profitability and is marked as X2 and calculated as cumulative over time in relation to total assets. The following most important ratio, X1, is an indicator of liquidity. The next one examines the sales-generating ability (X5), and the last one measures the extent to which the company's assets can decline in value before falling into insolvency – X4.

The following tables summarize results of the indicators used according to the eq. 27:

$$Z - Score = 1.2 \times X1 + 1.4 \times X2 + 3.3 \times X3 + 0.6 \times X4 + 0.999 \times X5$$

Scheme 3-10: Altman Z-Score of Daimler AG

	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014
DAIMLER												
X1	--	--	--	-0.043	0.098	0.024	0.052	0.028	0.042	0.054	0.067	0.054
X2	0.163	0.164	0.157	0.109	0.168	0.146	0.130	0.158	0.167	0.140	0.165	0.151
X3	0.022	0.025	0.016	0.023	0.058	0.045	-0.002	0.054	0.059	0.050	0.046	0.050
X4	0.261	0.239	0.266	0.268	0.693	0.249	0.393	0.552	0.339	0.357	0.538	0.509
X5	0.765	0.778	0.743	0.456	0.736	0.725	0.613	0.720	0.719	0.701	0.700	0.685
Z-Score	--	--	--	0.79	1.70	1.26	1.09	1.48	1.40	1.34	1.49	1.43

Source: own; based on financial statements

According to stated zones, which were described in the theoretical chapter, Daimler has been on the verge of bankruptcy for all examined years. Years 2003, 2004 and 2005 could not be computed for the lack of information, which would enable to calculate the net working capital (due to the use of US GAAP reporting). In 2006, the extremely low Z-Score was caused mainly by the negative working capital, which was a result of the liquidity problems that

DaimlerChrysler Group had. The other two lowest values were recorded during the financial crisis. In 2009, return on assets, on which the highest weight is placed, was negative. Anyhow, the Altman model would have predicted a financial distress of Daimler for the whole period.

Scheme 3-11: Altman Z-Score of Volkswagen Group

	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014
VW												
X1	0.246	0.053	0.034	0.057	0.086	0.068	0.047	0.045	0.018	0.024	0.011	0.001
X2	0.159	0.144	0.135	0.153	0.177	0.171	0.163	0.178	0.185	0.210	0.222	0.197
X3	0.015	0.013	0.021	0.015	0.042	0.038	0.010	0.036	0.044	0.037	0.036	0.036
X4	0.182	0.129	0.162	0.280	0.494	0.615	0.329	0.327	0.253	0.340	0.391	0.331
X5	0.732	0.701	0.716	0.768	0.749	0.678	0.594	0.636	0.628	0.623	0.607	0.576
Z-Score	1.41	1.08	1.11	1.27	1.53	1.49	1.11	1.25	1.21	1.27	1.28	1.17

Source: own; based on financial statements

VW has also been located within the bankruptcy zone as seen from the table above. The bankruptcy zone is taken as the value less than 1.81. In 2009, the extremely low ROA resulted in lower Z-Score. Overall, the company has been performing poorly as well as Daimler.

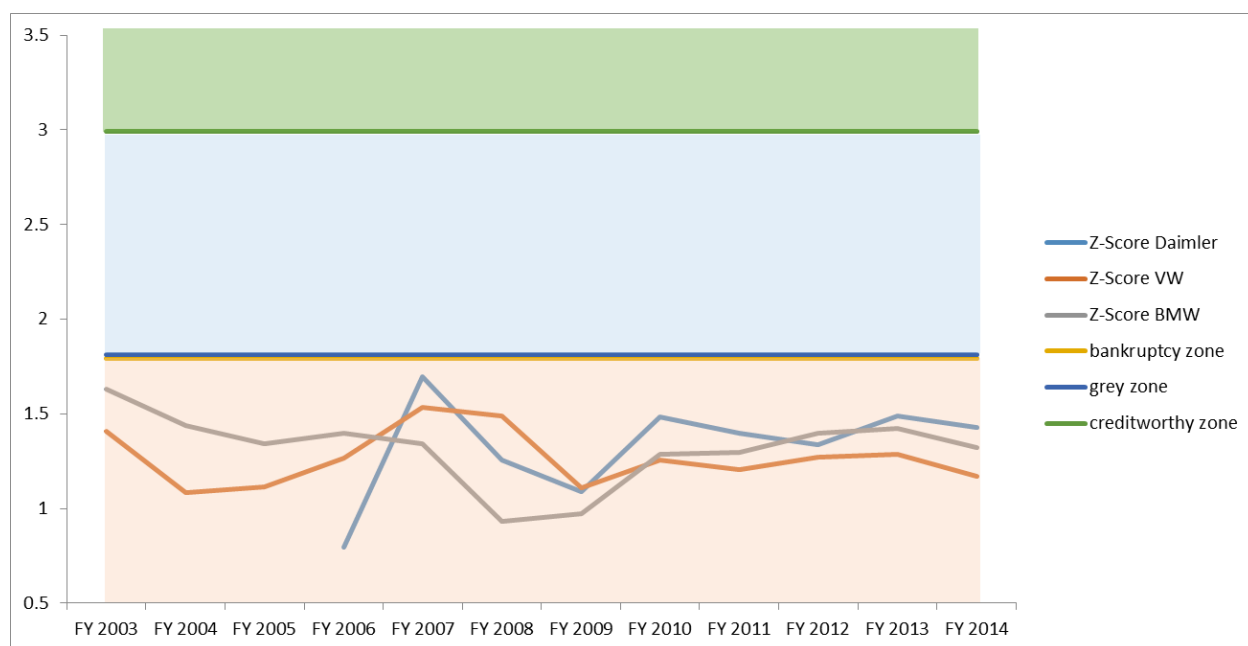
Scheme 3-12: Altman Z-Score of BMW AG

	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014
BMW												
X1	0.120	0.033	-0.014	0.000	-0.016	-0.006	0.030	0.027	0.015	0.016	0.015	-0.014
X2	0.206	0.215	0.219	0.229	0.234	0.202	0.200	0.204	0.211	0.217	0.240	0.230
X3	0.055	0.056	0.051	0.051	0.047	0.009	0.003	0.046	0.065	0.063	0.058	0.059
X4	0.574	0.430	0.430	0.477	0.416	0.170	0.248	0.447	0.352	0.473	0.544	0.502
X5	0.675	0.656	0.626	0.620	0.629	0.526	0.497	0.549	0.558	0.583	0.550	0.519
Z-Score	1.63	1.44	1.34	1.40	1.34	0.93	0.97	1.29	1.30	1.40	1.42	1.32

Source: own; based on financial statements

As shown above, BMW also never reached the gray/middle zone within the examined period. All companies have rather a low ROA, which influences the Altman Z-Score significantly. They also struggled with liquidity and solvency problems during the economic downturn in 2008 and 2009. The following graph shows the overall performance of all companies. Hence, it is clear as all manufacturers follow quite a same trend-line. The economic conditions led to overall similar financial health issues and the automotive industry has been immensely subjected to the external environment.

Graph 3-16: The graphical representation of the Altman model



Source: own

3.2.2. The Taffler' Z-Score

The Taffler model is another bankruptcy model, which should be able to predict the financial distress of an entity. In this case, four ratios are used and the weight is put more on the liquidity factor in comparison to the Altman model. The Taffler model also divides possible results into three zones, as described in the theoretical chapter. The equation, on which the model is based, is as followed (eq. 28):

$$Z - Score = 0.53 \times X1 + 0.13 \times X2 + 0.18 \times X3 + 0.16 \times X4$$

X1 indicator measures the operating profit in relation to short-term liabilities, which are liabilities the company needs to pay within the next 12 months. The economists Taffler and Tisshaw, who presented this model, are mostly interested to what extent the operating profit cover for short-term borrowings of the entity. X2 indicator is quite similar to the current ratio, which also focuses on liquidity. However, X2 is modified by total liabilities instead of current liabilities in the denominator. X3 represents a coverage ratio similar to debt ratio, in which the nominator is created by the short-term liabilities. X4 represents the asset turnover.

The following table summarizes results of calculated indicators and the overall Z-Score, which is further evaluated on the graph below.

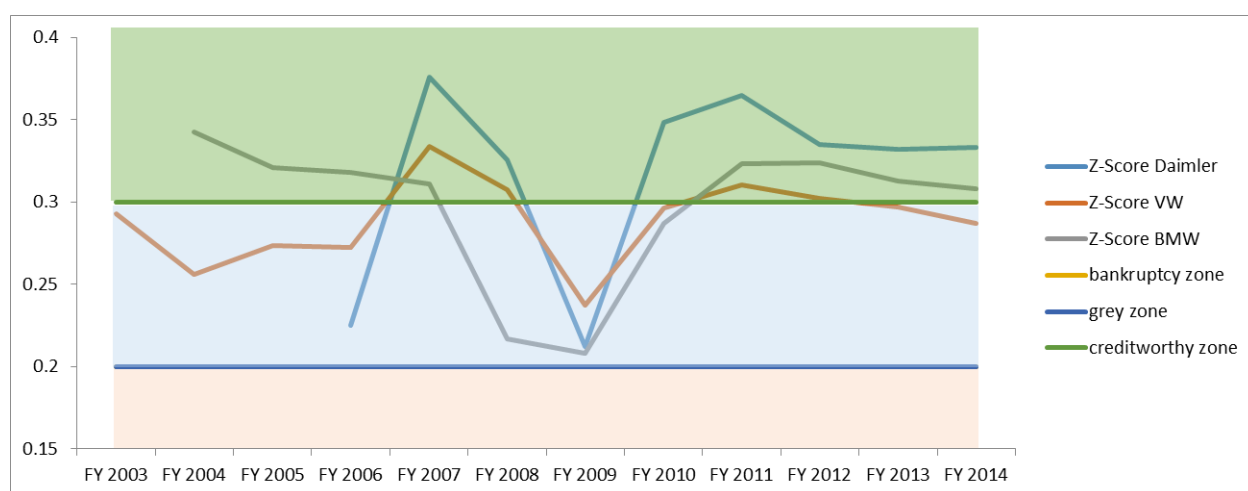
Scheme 3-13: Taffler Z-Score

	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014
DAIMLER												
X1	--	--	--	0.093	0.250	0.166	-0.007	0.211	0.252	0.204	0.198	0.212
X2	--	--	--	0.446	0.642	0.557	0.560	0.582	0.572	0.545	0.563	0.532
X3	--	--	--	0.250	0.233	0.271	0.253	0.254	0.233	0.243	0.235	0.234
X4	0.765	0.778	0.743	0.456	0.736	0.725	0.613	0.720	0.719	0.701	0.700	0.685
Z-Score	--	--	--	0.23	0.38	0.33	0.21	0.35	0.36	0.33	0.33	0.33
VW												
X1	0.062	0.046	0.075	0.055	0.172	0.142	0.038	0.141	0.173	0.197	0.181	0.173
X2	0.765	0.538	0.529	0.558	0.604	0.583	0.557	0.570	0.555	0.497	0.522	0.502
X3	0.243	0.277	0.280	0.266	0.246	0.266	0.276	0.253	0.257	0.189	0.199	0.208
X4	0.732	0.701	0.716	0.768	0.749	0.678	0.594	0.636	0.628	0.623	0.607	0.576
Z-Score	0.29	0.26	0.27	0.27	0.33	0.31	0.24	0.30	0.31	0.30	0.30	0.29
BMW												
X1	--	0.241	0.225	0.215	0.197	0.030	0.008	0.143	0.213	0.212	0.202	0.211
X2	0.966	0.525	0.469	0.476	0.481	0.479	0.487	0.500	0.509	0.499	0.508	0.484
X3	--	0.232	0.226	0.238	0.241	0.302	0.337	0.325	0.305	0.297	0.285	0.279
X4	0.675	0.656	0.626	0.620	0.629	0.526	0.497	0.549	0.558	0.583	0.550	0.519
Z-Score	--	0.34	0.32	0.32	0.31	0.22	0.21	0.29	0.32	0.32	0.31	0.31

Source: own; based on financial statements

In comparison to the Altman model, all manufacturers did not fall into the bankruptcy zone during the examined period. Before the financial crisis began, companies were on the rise as a result of favorable economic environment. This however changed. BMW, as was seen before, was the first one to experience the adverse side of the global crisis, and fell to the bottom of the grey zone already in 2008. BMW was followed by the other two manufacturers in 2009. The sharp drop was caused by an extremely low (in Daimler's case negative) EBIT. Since 2010, EBIT rose again and companies kept fluctuating just above the border of the creditworthy zone. Daimler has had the best performance when compared to its competitors since 2010.

Graph 3-17: The graphical representation of the Taffler model



Source: own

3.2.3. The Kralicek's Quick Test

The Quick Test of Kralicek differs in its structure from previous models. Unlike the Altman's and Taffler's model, Kralicek assigns five particular values of 0 to 4 based on results, which are reflected in the ratios used, instead of the weight coefficients. These values are subsequently evaluated. If the company scores 3 and more points, its financial position is very good, if 1 to 3, the situation is quite poor/moderate, and if less than one the financial health is rather bad. The process of the assignment was described in the theoretical chapter and therefore is given no more attention. For the sake of simplicity, companies are evaluated individually and then collectively illustrated on the graph.

Since 2008, Daimler showed worse results in terms of its revenue position, which is indicated by ROA and cash profitability ratio, in comparison to its financial stability, which is measured by the equity ratio and the time period, in which the company's capable to repay its obligations. Daimler's ROA was severely hit in 2009 as a result of the negative EBIT. The cash flow from operating activities was negative in 2011, 2012 and 2014, which influenced both X2 and X4, leading to an extremely low overall position. When looking at the points' evaluation, cash profitability ratio, which gives an idea how successfully Daimler turns sales into cash, scored overall quite well in the Quick test. The decline in 2009 should not be a worrisome result, as both sales and the CF from operations decreased. On the other hand, X4 ratio scored zero or one in the last few years. It is not a good indication for potential investors. Sales were increasing and the cash flow from operations dropped. Since Daimler explains this situation by its high contributions to pension plans, which are nowadays very low or completely doomed, and by its business growth strategy, the future trend cannot be easily predicted. In my opinion, the company's revenue position should not be considered endangered. The X3 indicator, which represents ROA, scores a low position, which is also anticipated by the other two manufacturers. It leads to an overall good revenue position of Daimler when compared to the cash profitability. Daimler's equity ratio scores generally very good results, which is recently impaired by the period of the obligations' repayment. In conclusion, Daimler's performance lies somewhere in the middle – its operations are not excellent but not in jeopardy, which could be suggested by the last few years because Daimler's position lies on the border of a bad and a middle zone according to the Quick Test.

Scheme 3-14: The Quick Test - Daimler AG

	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014
DAIMLER												
X1	19.34%	18.36%	18.08%	17.16%	28.30%	24.75%	24.71%	27.94%	27.91%	24.12%	25.73%	23.51%
X2 / years	3.3	6.7	6.8	8.5	3.9	19.8	5.3	7.1	-96.9	-71.9	23.7	-74.3
X3	2.18%	2.52%	1.59%	2.32%	5.84%	4.50%	-0.19%	5.35%	5.87%	4.96%	4.64%	4.95%
X4	12.09%	7.79%	8.25%	14.45%	13.17%	3.34%	13.89%	8.74%	-0.65%	-0.96%	2.78%	-0.98%
POINTS evaluation												
X1	2	2	2	2	3	3	3	3	3	3	3	3
X2 years	3	2	2	2	3	1	2	2	0	0	0	0
X3	1	1	1	1	1	1	0	1	1	1	1	1
X4	4	2	3	4	4	1	4	3	0	0	1	0
Financial stability	2.5	2.0	2.0	2.0	3.0	2.0	2.5	2.5	1.5	1.5	1.5	1.5
Revenue position	2.5	1.5	2.0	2.5	2.5	1.0	2.0	2.0	0.5	0.5	1.0	0.5
Overall position	2.5	1.8	2.0	2.3	2.8	1.5	2.3	2.3	1.0	1.0	1.3	1.0

Source: own; based on financial statements

Volkswagen has been following a similar trend as Daimler. Its overall position was rather good till 2007, when the performance fell the next year, but stayed within the “good” zone of the Quick Test. In 2009, VW overall position rose again. It was however decreasing since 2010. When compared to Daimler, both companies performed within the “middle/good” zone, VW was however achieving slightly better results. The point evaluation is seen on the table below. VW as well as Daimler scored great results in terms of the ability to turn sales into cash, which was again impaired by poor performance in relation to VW’s ROA. The X4 indicator worsened during the past few years. There were no significant changes in the CFO, which however slightly decreased in 2011 and 2012. On the other hand, sales dramatically rose as VW Group took over Porsche. This event led to a decline in the revenue position of VW and since the financial stability remained on one hand good in relation to its equity ratio but on the other hand it slightly fell as a result of a weaker cash position, which prolonged the period in which the company is capable to repay its obligations, the overall position moderately declined.

In conclusion, VW overall financial position declined a little in the past few years. VW performed badly in this test in terms of its return on assets but overall scored a “good” financial position. When evaluating the impact of ROA, this profitability ratio of car manufacturers is generally very low, because car conglomerates have large volumes of assets on their balance sheets in comparison to other companies in other industrial sectors.

Scheme 3-15: The Quick Test - Volkswagen Group

	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014
VW												
X1	20.59%	18.87%	17.77%	19.74%	21.97%	22.27%	21.13%	24.43%	24.98%	26.49%	27.76%	25.68%
X2 years	3.9	5.2	6.0	4.2	3.8	27.1	6.0	7.2	13.3	20.0	11.2	15.1
X3	1.49%	1.28%	2.10%	1.47%	4.23%	3.77%	1.05%	3.58%	4.44%	3.71%	3.60%	3.62%
X4	10.00%	12.92%	11.35%	13.80%	14.38%	2.37%	12.11%	9.03%	5.33%	3.74%	6.39%	5.33%
POINTS evaluation												
X1	3	2	2	2	3	3	3	3	3	3	3	3
X2 years	3	2	2	3	3	1	2	2	1	1	2	1
X3	1	1	1	1	1	1	1	1	1	1	1	1
X4	4	4	4	4	4	1	4	3	2	1	2	2
Financial stability	3.0	2.0	2.0	2.5	3.0	2.0	2.5	2.5	2.0	2.0	2.5	2.0
Revenue position	2.5	2.5	2.5	2.5	2.5	1.0	2.5	2.0	1.5	1.0	1.5	1.5
Overall position	2.8	2.3	2.3	2.5	2.8	1.5	2.5	2.3	1.8	1.5	2.0	1.8

Source: own; based on financial statements

BMW scored the best results until the financial crisis started in comparison to its competitors. BMW was performing very well during this period, which was seen earlier and which is obviously recognizable from the Quick Test as well, except for X3, which measures return on assets and scored poorly for the whole examined period. The overall position was then influenced by the development of the operating cash flow since 2010. With regards to X2 and X4, the CFO declined as total debt, current assets and sales increased, which prolonged the period of repaying BMW's obligations and reduced the cash return on sales. BMW's overall position has been also fluctuating within the "middle/good" zone of the Kralicek's Quick Test.

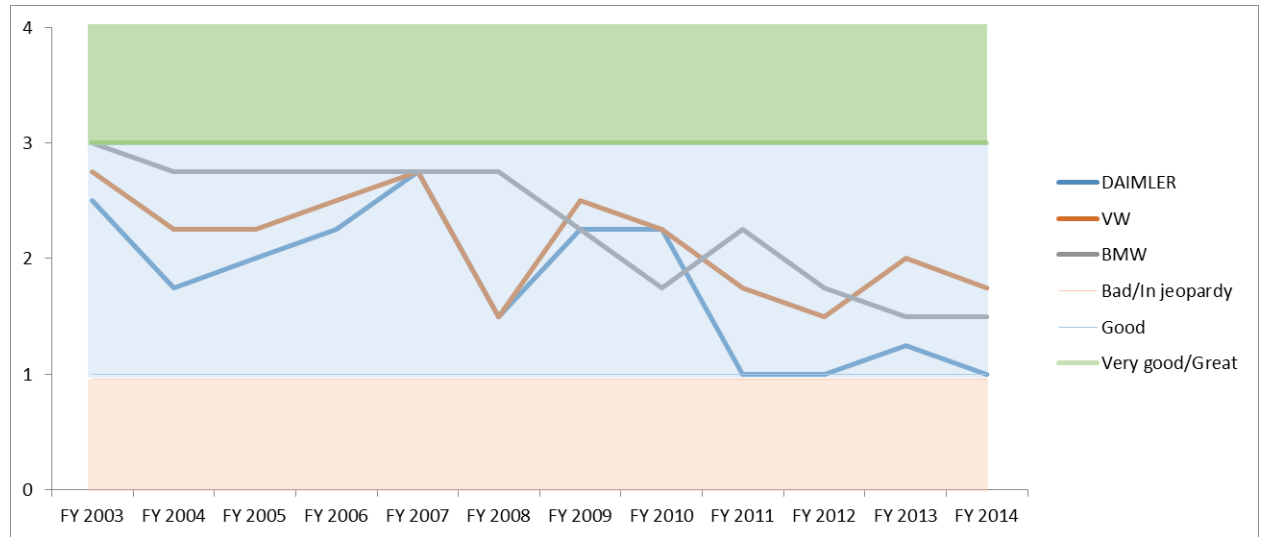
Scheme 3-16: The Quick Test - BMW AG

	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014
BMW												
X1	26.27%	24.45%	22.76%	24.20%	24.43%	20.06%	19.53%	21.72%	21.96%	23.22%	25.76%	24.18%
X2 years	0.9	3.6	3.7	4.1	3.8	4.8	5.1	12.7	10.8	12.8	18.1	27.0
X3	5.45%	5.58%	5.09%	5.12%	4.73%	0.91%	0.28%	4.64%	6.50%	6.28%	5.77%	5.89%
X4	18.95%	21.00%	22.91%	20.37%	21.05%	20.44%	20.27%	7.14%	8.30%	6.61%	4.75%	3.62%
POINTS evaluation												
X1	3	3	3	3	3	3	2	3	3	3	3	3
X2 years	4	3	3	3	3	3	2	1	2	1	1	1
X3	1	1	1	1	1	1	1	1	1	1	1	1
X4	4	4	4	4	4	4	4	2	3	2	1	1
Financial stability	3.5	3.0	3.0	3.0	3.0	3.0	2.0	2.0	2.5	2.0	2.0	2.0
Revenue position	2.5	2.5	2.5	2.5	2.5	2.5	2.5	1.5	2.0	1.5	1.0	1.0
Overall position	3.0	2.8	2.8	2.8	2.8	2.8	2.3	1.8	2.3	1.8	1.5	1.5

Source: own; based on financial statements

The following chart summarizes the development of companies in the context of the Quick Test. All three manufacturers follow a similar trend line and achieve moderately good results.

Graph 3-18: The Quick Test of Kralicek - the overall development of conglomerates



Source: own

3.3. Economic Value Added

The Economic value added is a result of entrepreneurial activities. Basically, it calculates the added value of the difference in the rate of return over a company's incurred capital costs. The theoretical procedure was described in Chapter 1.7.

3.3.1. EVA of Daimler AG

To begin with, the capital employed is calculated by adding up operating assets and net non-cash working capital. All figures were obtained from the statement of financial position of Daimler and the procedure is following according to the scheme described in Chapter 1.7.

- 1) Calculation of Capital employed
 - i. The computation of operating assets

Scheme 3-17: Operating assets of Daimler AG

In Mio €		FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014
	Tangible assets	16 087.0	15 965.0	17 593.0	19 180.0	20 599.0	21 779.0	23 182.0
+	Intangible assets	6 037.0	6 753.0	7 504.0	8 259.0	8 885.0	9 388.0	9 367.0
=	Operating assets	22 124.0	22 718.0	25 097.0	27 439.0	29 484.0	31 167.0	32 549.0

Source: company reports, own calculation

The trend of operating assets is increasing. It may be a good sign as these assets are those needed for the ongoing operations of the business. However, the proportion of operating assets should be ideally compared to the trend of sales or total assets. The ratio of operating assets to total assets was as following for given years of 2008 to 2014: 16.73%, 17.64%, 18.48%, 18.52%, 18.08%, 18.49%, and 17.16%. The results imply quite balanced operating assets. The trend of sales divided by operating assets, which provides the quantity of operating assets for each euro of generated sales, was decreasing for given years. In 2008, 4.3€ of operating assets were needed for each euro of sales. Then the number was fluctuating under 4.0€ and in 2014 it was exactly 4.0€ of operating assets per one euro of sales. Nowadays, managers are considered to be successful when lowering the proportion of operating assets and at the same time increasing the number of sales. The results therefore suggest that Daimler has a favorable strategy.

ii. The computation of net non-cash working capital

Scheme 3-18: Net non-cash working capital of Daimler AG

<i>In Mio €</i>		FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014
	Total current assets	55 389.0	54 280.0	57 003.0	61 118.0	67 458.0	70 441.0	77 145.0
-	Cash & cash eq.	6 912.0	9 800.0	10 903.0	9 576.0	10 996.0	11 053.0	9 667.0
=	Adj. current assets	48 477.0	44 480.0	46 100.0	51 542.0	56 462.0	59 388.0	67 478.0
-	Non-interest bearing liabilities	7 717.0	7 019.0	8 926.0	11 063.0	10 472.0	10 954.0	12 591.0
=	Net Working Capital	40 760.0	37 461.0	37 174.0	40 479.0	45 990.0	48 434.0	54 887.0

Source: company reports, own calculation

The net working capital is calculated generally for two purposes. First of all, it measures the short-term liquidity of a business. Second of all, it provides a general view on the utilization of assets. As explained in the theoretical chapter, the net non-cash working capital is computed by subtracting non-interest bearing liabilities from non-cash current assets. We may observe from the table that the number of the net working capital is not only positive, therefore sufficient in case funds from current assets should cover for current liabilities when due, but the number of the net working capital is also increasing, which may be seen rather as a positive sign of an efficient utilization of assets.

iii. The overall capital employed

Scheme 3-19: Capital employed of Daimler AG

<i>In Mio €</i>		FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014
	Operating assets	22 124.0	22 718.0	25 097.0	27 439.0	29 484.0	31 167.0	32 549.0
+	Net Working Capital	40 760.0	37 461.0	37 174.0	40 479.0	45 990.0	48 434.0	54 887.0
=	Capital Employed	62 884.0	60 179.0	62 271.0	67 918.0	75 474.0	79 601.0	87 436.0

Source: company reports, own calculation

The amount of capital employed has been increasing since 2008.

2) Calculation of NOPAT

Scheme 3-20: Net operating profit after tax of Daimler AG

<i>In Mio €</i>		FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014
	Revenues	95 873.0	78 924.0	97 761.0	106 540.0	114 297.0	117 982.0	129 872.0
-	Cost of Sales	74 314.0	65 567.0	74 988.0	81 023.0	88 821.0	92 457.0	101 688.0
=	Gross Profit	21 559.0	13 357.0	22 773.0	25 517.0	25 476.0	25 525.0	28 184.0
-	Selling&Admin. Expenses	13 328.0	10 895.0	12 335.0	13 679.0	14 429.0	14 740.0	14 863.0
-	R&D Eexpenditures	3 055.0	2 896.0	3 476.0	4 174.0	4 179.0	4 101.0	4 532.0
+/-	Other operating Inc./Exp.	780.0	190.0	311.0	1 026.0	1 216.0	1 131.0	599.0
=	EBIT	5 956.0	-244.0	7 273.0	8 690.0	8 084.0	7 815.0	9 388.0
-	Cash paid for taxes	898.0	358.0	1 189.0	2 817.0	2 102.0	1 309.0	2 170.0
=	NOPAT	5 058.0	-602.0	6 084.0	5 873.0	5 982.0	6 506.0	7 218.0

Source: company reports, own calculation

The net operating profit, which determines the operating results of Daimler inclusive of taxes, should naturally be positive as generating profits is the primary task of any enterprise. The negative number in 2009 was caused by the impact of financial crisis. We may observe from the table that revenues decreased significantly in 2009 while cost of sales did not decrease proportionally. This fact had the major impact that the operating profit and subsequently the net operating profit after taxes were negative. Daimler however recovered quickly and NOPAT returned to positive numbers already in 2010.

3) Calculation of WACC

i. Cost of Equity, Cost of Debt

Scheme 3-21: Cost of equity of Daimler AG

<i>In Mio €</i>		FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014
	Cost of Equity	10.11%	8.55%	9.39%	11.18%	9.38%	8.39%	9.15%
	Risk free rate	2.98%	3.15%	3.00%	1.93%	1.42%	1.94%	0.54%
	Beta	0.91	0.96	1.05	1.05	1.06	1.16	1.23
	Market risk premium	7.83%	5.63%	6.09%	8.81%	7.51%	5.56%	7.0%

Source: Marktrisikoprämie.de, Bloomberg

Scheme 3-22: Cost of debt of Daimler AG

<i>In Mio €</i>		FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014
	Cost of debt	8.04%	6.28%	4.74%	5.74%	4.11%	4.29%	2.86%
	Risk free rate	2.98%	3.15%	3.00%	1.93%	1.42%	1.94%	0.54%
	Default spread	5.06%	3.13%	1.74%	3.81%	2.69%	2.35%	2.32%

Source: Marktrisikoprämie.de, Bloomberg

The cost of equity was calculated according to the eq. (35). The risk free rate together with the market risk premium was obtained from the German Marktrisikoprämie database. The risk free rate corresponds to the yield of the German 10-Year Bond. German 10Y Eurobond is generally preferred as German bonds have higher liquidity and lower credit risk compared to bonds of other European countries (Koller et al. 2010).¹¹ The yields on government bonds were the highest in the beginning of the new century, then experienced a significant fall that culminated in 2005, the increase in profitability followed in 2006 and 2007, which was a predecessor of the financial crisis when returns on bonds dropped to an average of more than 1%. The development of spread on the bond market was also interesting, especially in relation to the financial and economic crisis. Until the beginning of the financial and economic crisis in 2008, the difference in yields of 10Y government bonds ranged between 1% and bonds of European states promised similar returns. Since 2008, the spread of bonds of some countries

¹¹ The compared data of 10Y German Bond were taken from the portal Investing.com

such Portugal, Italy, Spain and Greece reached around 10%. With regard to the Greece-Germany 10Y bond, the situation seemed to be stabilized in 2014 after almost 30% spread in 2012. Due to the recent euro crisis of Greece, the spread is currently, in July 2015, around 10%. Greece remains its high yields on government bonds as a result of high risks, which are associated with an investment in this country.

Anyhow, the risk free rate of return is generally influenced by factors such expected inflation and real economic growth, and affects both cost of equity and cost of debt. As Damodaran (2011) points out, lower risk free rates, holding all else constant, result in lower lending interest rates. And vice versa, when risk free rate increases, the interest rates rise as well, which was experienced during the financial crisis. If we look at Germany's benchmark interest rate, which is set by the European Central Bank, the interest rate in the euro area scored above 4% in 2008, which immensely dropped between 2009 and 2010 and stayed low recently at a level of 0.05%, which was reached in September 2014. Through this policy of low interest rates, the European Central Bank seeks to stimulate the European economy, to which the low inflation do not contribute as well.

Damodaran (2008) also highlights the effect of risk free rates to growth and mature companies. If the risk free rate increases, the value of growth assets will decrease since growth assets deliver cash flows in the future and existing assets increase. This leads to the situation that the values of growth companies decrease more than the value of mature companies. Still, the automotive manufacturers were severely hit during the crisis.

Beta of Daimler was obtained from Bloomberg as an average of a given year. We may observe from the table that beta was less than 1 during the financial crisis, which means that it was moving less than the market and was offering lower returns to investors. In general, the beta factor of the German automotive industry is more than 1. The beta of Daimler has been exceeding the equilibrium between the stock and the market again since 2010. The economic crisis generally results in a changed risk tolerance. However, the market risk premium did not fluctuate extremely and more or less was close to its appropriate range, which may be for Germany considered between 5%-7% as an appropriate equity premium (Damodaran, 2015). In 2008 and also in 2011, the higher market risk premium indicated higher risk for investors.

Although the cost of equity has had a decreasing trend since the financial crisis and has remained obviously higher than the cost of debt, a significant decline in cost of debt must be mentioned. The lower cost of debt compared to the cost of equity is quite usual as the cost of

debt is cheaper. Equity investors face a higher risk as equity cannot be backed up against any security and in case of bankruptcy of the company, shareholders' claims are the last to be satisfied when compared to rights, which creditors have over the company. The declining trend of the cost of debt has been caused by the decline of both the risk free rate and default spread as the technique for the computation of the default debt is by adding up risk free rate of return and the credit spread/default risk premium together. The estimation of the default spread, which assesses the creditworthiness of the companies, was obtained from Bloomberg. During the financial crisis, the credit ratings of all manufacturers downgraded, which led to a higher default spread. The credit rating agencies did not possess a strong power at the time as they were the one to fail in economic predictions. However, we may observe, that the default spread, which reflects the company's magnitude and strength of cash flows, the size of debt relative to its assets etc., fluctuated between 2% to 3% recently. When evaluation both the cost of equity and the cost of capital, global financial crisis influenced these factors as business entities feared of liquidity crisis. As a result, corporate cash levels have been rising, and on the other hand, corporate debt levels falling. In general, companies were continuously trying to lower their debt levels in order to survive the economic downfall.

ii. The output of WACC

Scheme 3-23: WACC of Daimler AG

<i>In Mio €</i>		FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014
	WACC	6.28%	7.70%	6.11%	6.47%	5.49%	5.75%	5.11%
	Cost of equity	10.11%	8.55%	9.39%	11.18%	9.38%	8.39%	9.15%
	Cost of debt (pre-tax)	8.04%	6.28%	4.74%	5.74%	4.11%	4.29%	2.86%
	Effective Tax Rate	39.00%	-15.10%	29.50%	28.60%	15.80%	14.00%	28.30%
E	Total Market Cap	24 764.3	38 123.5	54 057.9	36 168.9	44 113.2	67 290.4	73 797.9
D	Book value of debt	68 741.0	68 031.0	64 191.0	71 860.0	84 700.0	86 014.0	97 395.0
	E/(E+D)	26.48%	35.91%	45.72%	33.48%	34.25%	43.89%	43.11%
	D/(E+D)	73.52%	64.09%	54.28%	66.52%	65.75%	56.11%	56.89%

Source: annual consolidated reports, own calculations

The WACC is calculated with the formula mentioned in Chapter 1.7 (eq. 34). Reason for the application of the market value of equity and the book value of debt was also mentioned in the theoretical chapter. This combination is widely used by practitioners. It was however pointed out earlier that there is a threat of possible large deviations during times of distress. This must be therefore kept in mind. As seen from the table, the total market capitalization as well as the share of equity on the overall capital has finally increased in 2013 and 2014 to its pre-crisis state. The trend in the development of share prices, which affect the market capitalization and overall stock market, was significantly influenced by the global crisis. As the return on the bond market

usually increases, while the return on the stock market decrease, and vice versa, during the period of crisis both indicators decreased – it could be observed by the comparison in the development of DAX (ref. as Deutscher Aktienindex) and 10Y bonds. Many companies therefore experienced turbulent years on global stock markets. Daimler recorded the market capitalization of €67 billion in 2007, which dropped over the next year to almost €25 billion as seen from the table above. In 2010, the situation on the stock markets seemed to be better as a result of positive economic development, which was however still volatile. The decline in 2011 was caused by a number of factors such the worsening debt crisis, the natural disaster of the Fukushima nuclear power plant, conflicts in North Africa and Middle East and overall weaker economic outlook, which was expected by the market. Compared to the financial analysis of conglomerates, when the economic performance of all companies started its recovery in 2010, the stock market remained at its ongoing recession, which prevailed in 2012.

At the beginning of the financial crisis operations of automotive conglomerates heavily relied on debt when considering the proportions of debt and equity. However, we observed a process of reducing such difference since the collapse. The book value of debt, which is used in this thesis as a proxy to the market value of debt, has been increasing at quite a low pace. The net book value of debt is typically calculated as notes payable plus short-term and long-term debt of a company.¹² Data of the effective tax rate are taken from the annual financial statements. On average in the last 10 years, automotive conglomerates have had their effective tax rate around 30%, one of the highest in the world. As seen from the table, the effective tax rates vary quite significantly. It is believed that multinational corporations have multiple strategies in reserve thanks to which they can get rid of the tax burden in times of crisis. On the top of that, economic conditions and debt financing lead to much lower effective tax rates and a loss or a low profitability is reflected then in the taxable income. The deviations of effective tax rates in Germany were supported by the German Business Reform Act 2008¹³ which reduced the corporate tax rate from 25% to 15% and the local business tax was reduced from 5% to 3.5%. Moreover, Germany introduced its Economic Stimulus Package (Konjunkturpaket I), which was supposed to help companies for example by temporary special depreciation allowances etc. The negative tax rate of Daimler in 2009 is therefore caused by a loss which the company suffered that year as well as all other mentioned aspects. Furthermore, as stated in the annual report 2009,

¹² For Daimler AG: the book value of debt is computed as short-term borrowings plus long-term debt plus other financial liabilities. For BMW AG and VW AG: the book value of debt is computed as current and noncurrent financial liabilities. Please refer to ANEX for consolidated financial statements.

¹³ Unternehmenssteuerreformgesetz 2008

the effective tax rate in 2008 was higher than the expected tax rate because of impairments recognized on deferred tax assets, which influenced the effective tax rate in 2009 as well (Daimler AG Annual Report, 2009). The WACC was more or less fluctuating in examined years.

4) The Economic Value Added of Daimler AG

Scheme 3-24: EVA of Daimler AG

<i>In Mio €</i>		FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014
	NOPAT	5 058.0	-602.0	6 084.0	5 873.0	5 982.0	6 506.0	7 218.0
	WACC	6.28%	7.70%	6.11%	6.47%	5.49%	5.75%	5.11%
	Capital employed	62 884.0	60 179.0	62 271.0	67 918.0	75 474.0	79 601.0	87 436.0
	EVA	1 107.7	-5 238.6	2 280.0	1 479.0	1 840.0	1 927.0	2 749.1

Source: own calculations

The economic value added of Daimler was positive except for 2009. Such outcome suggests that the company's financial and mostly operational strategy is functioning well and that Daimler is generating enough revenue which can be further used for investments. The outcome in 2009 is a result of both negative operating profit and exceptionally high weighted average cost of capital.

3.3.2. EVA of Volkswagen Group

1) Calculation of Capital employed

i. The computation of operating assets

Scheme 3-25: Operating assets of Volkswagen Group

<i>In Mio €</i>		FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014
	Tangible assets	23 121.0	24 444.0	25 847.0	31 916.0	39 424.0	42 389.0	46 169.0
+	Intangible assets	12 291.0	12 907.0	13 104.0	21 992.0	59 112.0	59 243.0	59 935.0
=	Operating assets	35 412.0	37 351.0	38 951.0	53 908.0	98 536.0	101 632.0	106 104.0

Source: company reports, own calculation

The trend line of operating assets of VW recorded a notable increase during the examined period. Both tangible as well as intangible assets experienced a rise. The relevant change happened between 2011 and 2012 and was primarily caused by necessary increase in product and engine capacities (Volkswagen Group Annual Report, 2012). As mentioned before, the proportion of operating assets should be ideally compared to the trend of sales or total assets. The ratio of operating assets to total assets was as following for given years of 2008 to 2014: 21.09%, 21.08%, 19.53%, 21.25%, 31.84%, 31.34%, and 30.21%. The ten percentage point increase in the ratio of operating assets to total assets was obviously caused by an increase in product and engine capacities between 2011 and 2012. Although the ratio of operating assets to total assets increased, it is important to consider the effect of the quantity of operating assets

needed for each euro of sales, whether there was a positive impact when expanding operational capacities or not. The trend of sales divided by operating assets, respectively the quantity of operating assets for each euro of generated sales, was as following for given years 2008 till 2014: 3.21€, 2.82€, 3.26€, 2.96€, 1.96€, 1.94€ and 1.91€ of operating assets for each euro of sales. In conclusion, Volkswagen successfully managed to lower the operating assets needed for the unit of sales as a result of economic activities between 2011 and 2012.

The computation of net working capital is following:

ii. The computation of net non-cash working capital

Scheme 3-26: Net non-cash working capital of Volkswagen group

<i>In Mio €</i>		FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014
	Total current assets	76 163.0	77 776.0	85 936.0	105 640.0	113 061.0	122 192.0	131 102.0
-	Cash & cash eq.	9 474.0	20 539.0	18 670.0	18 291.0	18 488.0	23 178.0	19 123.0
=	Adj. current assets	66 689.0	57 237.0	67 266.0	87 349.0	94 573.0	99 014.0	111 979.0
-	Non-interest bearing liabilities	10 501.0	10 298.0	12 830.0	17 169.0	17 506.0	21 880.0	23 489.0
=	Net Working Capital	56 188.0	46 939.0	54 436.0	70 180.0	77 067.0	77 134.0	88 490.0

Source: company reports, own calculation

The increase in total assets was also reflected in the amount of net working capital, which significantly increased between 2010 and 2011. The net working capital is positive, hence sufficient in case funds from current assets should cover for current liabilities when due.

iii. The overall capital employed

Scheme 3-27: Capital employed of Volkswagen Group

<i>In Mio €</i>		FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014
	Operating assets	35 412.0	37 351.0	38 951.0	53 908.0	98 536.0	101 632.0	106 104.0
+	Net Working Capital	56 188.0	46 939.0	54 436.0	70 180.0	77 067.0	77 134.0	88 490.0
=	Capital Employed	91 600.0	84 290.0	93 387.0	124 088.0	175 603.0	178 766.0	194 594.0

Source: company reports, own calculation

The amount of capital employed has been balanced throughout the years 2008 and 2010. As both operating assets and net working capital are part of the capital employed, the impact of the rise in operating capacities caused consequently the rise in the capital employed. The amount of invested equity into VW has almost doubled when we compare the beginning and the ending examined period.

2) Calculation of NOPAT

Scheme 3-28: Net operating profit after tax of Volkswagen Group

In Mio €		FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014
	Revenues	113 808.0	105 187.0	126 875.0	159 337.0	192 676.0	197 007.0	202 458.0
-	Cost of Sales	96 612.0	91 608.0	105 431.0	131 371.0	157 522.0	161 407.0	165 934.0
=	Gross Profit	17 196.0	13 579.0	21 444.0	27 965.0	35 154.0	35 600.0	36 524.0
-	Selling&Admin. Expenses	13 294.0	13 276.0	15 500.0	18 966.0	25 070.0	26 543.0	27 133.0
-	R&D Eexpenditures	--	--	--	--	--	--	--
+/-	Other operating Inc./Exp.	2 431.0	1 552.0	1 198.0	2 271.0	1 414.0	2 613.0	3 306.0
=	EBIT	6 333.0	1 855.0	7 142.0	11 270.0	11 498.0	11 670.0	12 697.0
-	Cash paid for taxes	2 075.0	529.0	1 554.0	3 269.0	5 056.0	3 107.0	4 040.0
=	NOPAT	4 258.0	1 326.0	5 588.0	8 001.0	6 442.0	8 563.0	8 657.0

Source: company reports, own calculation

Before evaluating the net operating profit, which determines the operating results of VW inclusive of taxes, the overall trend of revenues and profits should be mentioned. Between 2003 and 2014, the net profit before minority interests rose from 1,118.0 Mio EUR in 2003 to 11,068.0 Mio EUR in 2014, exceptionally high in 2012 when the net profit after tax before minority interests reached 21,881.0 Mio EUR¹⁴ as a consequence of the takeover of Porsche, which was mentioned earlier. The net operating profit after tax is reflected in both the economic crisis in 2009 when it dropped as well as in the successful development of VW later on. In 2014 the NOPAT reached 8,657.0 Mio EUR.

3) Calculation of WACC

i. Cost of Equity, Cost of Debt

Scheme 3-29: Cost of equity of Volkswagen Group

In Mio €		FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014
	Cost of Equity	9.95%	8.05%	9.03%	11.53%	10.88%	9.28%	10.20%
	Risk free rate	2.98%	3.15%	3.00%	1.93%	1.42%	1.94%	0.54%
	Beta	0.89	0.87	0.99	1.09	1.26	1.32	1.38
	Market risk premium	7.83%	5.63%	6.09%	8.81%	7.51%	5.56%	7.0%

Source: Marktrisikoprämie.de, VW AG annual report

Scheme 3-30: Cost of debt of Volkswagen Group

In Mio €		FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014
	Cost of debt	6.77%	5.50%	4.28%	5.18%	3.71%	3.69%	2.28%
	Risk free rate	2.98%	3.15%	3.00%	1.93%	1.42%	1.94%	0.54%
	Default spread	3.79%	2.35%	1.28%	3.25%	2.29%	1.75%	1.74%

Source: Marktrisikoprämie.de, VW AG annual report

¹⁴ See ANEX: Financial statements

In order to calculate the cost of capital, the risk free rate together with the market risk premium was obtained from the German Marktrisikoprämie database. Beta of VW was obtained from the annual report of VW. The development of beta is quite comparable to beta of Daimler over the examined years. From 2007 until 2010 beta was less than 1, indicating that the securities' price was less volatile than the market's. Since 2011 the trend of beta reversed by exceeding 1 and therefore returned to its normal course which remained till 2006. The pre-tax cost of debt was calculated by the method described earlier. In this case, results could have been compared to VW data of pre-tax cost of debt, which e.g. in 2014 accounted for 2.3%, in 2013 for 3.7%. In conclusion, the cost of equity was rather stable throughout the examined years, understandably higher in both 2011 and 2012, while the cost of debt was significantly decreasing. This trend was observed by Daimler as well. Automotive manufacturers strived for lower cost of debt in order to cope with the ongoing economic crisis.

ii. The output of WACC

Scheme 3-31: WACC of Volkswagen Group

In Mio €		FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014
	WACC	7.56%	5.49%	5.62%	6.78%	6.24%	5.54%	5.04%
	Cost of equity	9.95%	8.05%	9.03%	11.53%	10.88%	9.28%	10.20%
	Cost of debt (pre-tax)	6.77%	5.50%	4.28%	5.18%	3.71%	3.69%	2.28%
	Effective Tax Rate	29.10%	27.70%	19.70%	16.50%	14.20%	26.40%	25.20%
E	Total Market Cap	80 220.4	45 983.4	49 263.4	48 221.4	77 316.0	91 605.4	86 501.1
D	Book value of debt	69 380.0	77 599.0	77 012.0	93 531.0	117 663.0	121 504.0	133 980.0
	E/(E+D)	53.62%	37.21%	39.01%	34.02%	39.65%	42.99%	39.23%
	D/(E+D)	46.38%	62.79%	60.99%	65.98%	60.35%	57.01%	60.77%

Source: annual consolidated reports, own calculations

The WACC is calculated with the formula mentioned in Chapter 1.7 (eq. 34). As seen from the table, the total market capitalization increased by 43.23% in 2008 – compared to 2007 when the market capitalisation reached 55,985.6 Mio EUR, and 2009 when it accounted for 45,983.4 Mio EUR. The enormously high market capitalisation in 2008 was caused by a disclosure of Porsche's plans to acquire VW. As described earlier when analysing the market ratios, the situation consequently drove up the share price of VW. In 2009 till 2011, VW was experiencing the adverse side of the global recession in relation to VW stock market situation. Share prices started increasing in 2012. Capital markets were recovering as a result of positive economic conditions, although the uncertainty about long-term solution to the problems in Greece caused some fluctuations. Factors that helped to boost the development of share prices were e.g. the agreement of EU members on the European fiscal pact, the rescue package for Spanish banks, the second round of negotiations with Greece or the cut of the ECB interest rates to its historical

minimum. Regarding the book value of debt and market capitalisation figures in 2013 and 2014, numbers reflect a successful expansion of the company. The share of equity is approx. 40% and the share of debt 60% in 2014. The WACC has been fluctuating between approx. 5%-7% since 2009, moderately higher in 2011 and 2012.

4) The Economic Value Added of Volkswagen Group

Scheme 3-32: EVA of Volkswagen Group

<i>In Mio €</i>		FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014
	NOPAT	4 258.0	1 326.0	5 588.0	8 001.0	6 442.0	8 563.0	8 657.0
	WACC	7.56%	5.49%	5.62%	6.78%	6.24%	5.54%	5.04%
	Capital employed	91 600.0	84 290.0	93 387.0	124 088.0	175 603.0	178 766.0	194 594.0
	EVA	-2 667.7	-3 302.8	341.0	-408.7	-4 509.1	-1 335.5	-1 146.8

Source: own calculations

The economic value added of VW was negative as capital costs have been exceeding the net operating profit after tax for all examined years except for 2010. Such outcome is highly undesirable as VW is not generating enough value added which could be further used for investments etc. Nowadays some economists argue that the negative economic value added may not be crucial for a short-period of time and might represent a strategy instead. However, the general approach to the EVA is not such, therefore VW should focus on lowering capital costs and simultaneously increasing profits.

3.3.3. EVA of BMW AG

1) Calculation of Capital employed

i. The computation of operating assets

Scheme 3-33: Operating assets of BMW AG

<i>In Mio €</i>		FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014
	Tangible assets	11 292.0	11 385.0	11 427.0	11 685.0	13 341.0	15 113.0	17 182.0
+	Intangible assets	5 641.0	5 379.0	5 031.0	5 238.0	5 207.0	6 179.0	6 499.0
=	Operating assets	16 933.0	16 764.0	16 458.0	16 923.0	18 548.0	21 292.0	23 681.0

Source: company reports, own calculation

As seen from the table, operating assets are increasing. When evaluating whether it is a good sign or not, the total assets are taken into account. The ratio of operating assets to total assets was as following for given years 2008 – 2014: 16.75%, 16.44%, 14.94%, 13.71%, 14.07%, 15.39%, and 15.30%. The results are generally good as BMW uses proportionally less operating assets for the ongoing operations. When compared to the trend of sales, the required quantity of operating assets for each euro of generated sales was fluctuating between 3.0€ to 3.7€ throughout given

years except for 2011 and 2012, when the results reached 4.07€ per sales and 4.14€ per sales. In this matter, the company's strategy is rather stable.

ii. The computation of net non-cash working capital

Scheme 3-34: Net non-cash working capital of BMW AG

<i>In Mio €</i>		FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014
	Total current assets	38 670.0	39 944.0	43 151.0	49 004.0	50 530.0	52 174.0	56 844.0
-	Cash & cash eq.	7 454.0	7 767.0	7 432.0	7 776.0	8 370.0	7 664.0	7 688.0
=	Adj. current assets	31 216.0	32 177.0	35 719.0	41 228.0	42 160.0	44 510.0	49 156.0
-	Non-interest bearing liabilities	3 195.0	3 958.0	5 549.0	6 703.0	7 945.0	8 712.0	9 299.0
=	Net Working Capital	28 021.0	28 219.0	30 170.0	34 525.0	34 215.0	35 798.0	39 857.0

Source: company reports, own calculation

The net working capital is positive and simultaneously increasing, therefore sufficient in case funds from current assets should cover for current liabilities when due.

iii. The overall capital employed

Scheme 3-35: Capital employed of BMW AG

<i>In Mio €</i>		FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014
	Operating assets	16 933.0	16 764.0	16 458.0	16 923.0	18 548.0	21 292.0	23 681.0
+	Net Working Capital	28 021.0	28 219.0	30 170.0	34 525.0	34 215.0	35 798.0	39 857.0
=	Capital Employed	44 954.0	44 983.0	46 628.0	51 448.0	52 763.0	57 090.0	63 538.0

Source: company reports, own calculation

The amount of capital employed has been growing steadily as well.

2) Calculation of NOPAT

Scheme 3-36: Net operating profit after tax of BMW AG

<i>In Mio €</i>		FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014
	Revenues	53 197.0	50 681.0	60 477.0	68 821.0	76 848.0	76 058.0	80 401
-	Cost of Sales	47 148.0	45 356.0	49 545.0	54 276.0	61 354.0	60 784.0	63 396
=	Gross Profit	6 049.0	5 325.0	10 932.0	14 545.0	15 494.0	15 274.0	17 005
-	Selling&Admin. Expenses	5 369.0	5 040.0	5 529.0	6 177.0	7 032.0	7 255.0	7 892
-	R&D Eexpenditures	--	--	--	--	--	--	--
+/-	Other operating Inc./Exp.	241.0	4.0	-292.0	-350.0	-187.0	-33.0	5.0
=	EBIT	921.0	289.0	5 111.0	8 018.0	8 275.0	7 986.0	9 118.0
-	Cash paid for taxes	448.0	349.0	1 318.0	2 701.0	2 462.0	2 787.0	4 252
=	NOPAT	473.0	-60.0	3 793.0	5 317.0	5 813.0	5 199.0	4 866.0

Source: company reports, own calculation

The operating profit of BMW has been around 4,000.0 Mio EUR till 2007. After 2007, EBIT dropped heavily both in 2008 and 2009 as a result of the economic downfall. Such results have

been reflected in the NOPAT, which turned out to be very low in 2008 and negative in 2009. Thus, the economic value added is expected to be negative at least for 2008 and 2009.

3) Calculation of WACC

i. Cost of Equity, Cost of Debt

Scheme 3-37: Cost of equity of BMW AG

In Mio €		FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014
	Cost of Equity	9.71%	8.72%	9.15%	10.92%	9.38%	7.94%	8.17%
	Risk free rate	2.98%	3.15%	3.00%	1.93%	1.42%	1.94%	0.54%
	Beta	0.86	0.99	1.01	1.02	1.06	1.08	1.09
	Market risk premium	7.83%	5.63%	6.09%	8.81%	7.51%	5.56%	7.0%

Source: Marktrisikoprämie.de, Bloomberg

Scheme 3-38: Cost of debt of BMW AG

In Mio €		FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014
	Cost of debt	6.71%	5.46%	4.28%	5.18%	3.71%	3.67%	2.25%
	Risk free rate	2.98%	3.15%	3.00%	1.93%	1.42%	1.94%	0.54%
	Default spread	3.73%	2.31%	1.28%	3.25%	2.29%	1.73%	1.71%

Source: Marktrisikoprämie.de, Bloomberg

The cost of equity was calculated according to the eq. (35). The risk free rate together with the market risk premium was obtained from the German Marktrisikoprämie database. Beta of BMW was obtained from Bloomberg as an average of a given year. As seen from the table, the trend of beta has been similar to previous betas of Daimler and VW. During the financial crisis beta was less than 1. However, it has been exceeding the equilibrium of 1 again since 2010. The cost of equity has been balanced throughout given years. On the other hand, there was a significant decline in the cost of debt, which is quite typical for business entities at times of the financial distress. In conclusion, automotive conglomerates are characterized by such development during the financial crisis.

ii. The output of WACC

Scheme 3-39: WACC of BMW AG

In Mio €		FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014
	WACC	6.94%	4.26%	5.27%	5.93%	5.26%	4.90%	4.32%
	Cost of equity	9.71%	8.72%	9.15%	10.92%	9.38%	7.94%	8.17%
	Cost of debt (pre-tax)	6.71%	5.46%	4.28%	5.18%	3.71%	3.67%	2.25%
	Effective Tax Rate	6.00%	49.20%	33.10%	33.50%	34.50%	32.50%	33.20%
E	Total Market Cap	13 732.6	20 354.7	38 556.1	33 932.1	47 841.3	55 926.5	58 933.5
D	Book value of debt	60 384.0	61 325.0	62 353.0	67 977.0	69 507.0	70 304.0	80 649.0
	E/(E+D)	18.53%	24.92%	38.21%	33.30%	40.77%	44.31%	42.22%
	D/(E+D)	81.47%	75.08%	61.79%	66.70%	59.23%	55.69%	57.78%

Source: Bloomberg, company reports, own calculation

The WACC is calculated with the formula mentioned in the chapter 1.7 (eq. 34). Basically, there are two significant pieces of information which can be deducted from the table above. The proportion of equity on the overall capital of BMW has increased and simultaneously the proportion of debt has decreased. As the proportion of debt accounted for more than 80% in 2008 and the reliance of the conglomerate on debt was immense, the company obviously feared of debt- and liquidity crisis. As a result, the ratio of debt and equity to the overall capital is seen more balanced in 2014. The debt ratio is obviously still higher. The second remark concerns the effective tax rate. As explained earlier, entities use many of their strategies to get rid of a tax burden during the crisis. Such deviations are then usually reflected in following years as seen on the example of BMW in 2008 and 2009. BMW has had its effective tax rate around 31-32% for the last 10 years with the exception of crisis. The effective tax rate of BMW was exceptionally low in 2008, probably as a result of low profits that year, corporate tax strategies, and external circumstances. The market capitalization fell from €27 947 millions in 2007 to the half level of approx. €13 732 millions in 2008. As described earlier, the capital markets slightly recovered and reflected positive economic environment in 2010, which was followed again by a decline. In 2014, the market capitalization of BMW reached almost €59 billion.

4) The Economic Value Added of BMW AG

Scheme 3-40: EVA of BMW AG

<i>In Mio €</i>		FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014
NOPAT		473.0	-60.0	3 793.0	5 317.0	5 813.0	5 199.0	4 866.0
WACC		6.94%	4.26%	5.27%	5.93%	5.26%	4.90%	4.32%
Capital employed		44 954.0	44 983.0	46 628.0	51 448.0	52 763.0	57 090.0	63 538.0
EVA		-2 646.2	-1 974.7	1 337.7	2 264.9	3 035.7	2 401.8	2 122.5

Source: own calculations

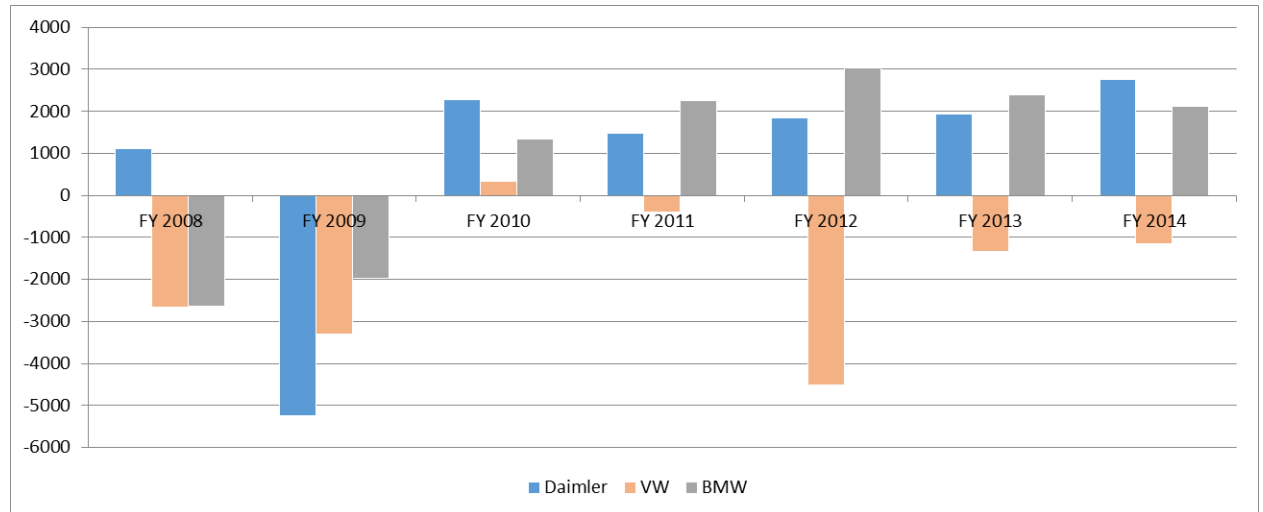
The low result of NOPAT in 2008 and even negative in 2009 caused an undesirable situation that there was no creation of shareholders' value for these two years. The economic value added was negative. It has been however positive since 2010, which reflects a successful recovery of BMW after the crisis and gives a good signal for potential investors.

3.3.4. EVA summary

In general, the comparison of car manufacturers in terms of EVA is difficult. All companies pursue different strategies and target different markets. They also achieve different profitability in relation to its size and number of vehicles sold.

The following graph will conclude the topic and provide a general overview of the indicator's development.

Graph 3-19: The comparison of conglomerates in relation to EVA



Source: own

In 2009, consequences of the financial crisis were reflected in the poor performance of all German manufacturers. They all achieved negative economic value added. Both VW and BMW scored negative EVA already in 2008. Companies were however capable of reversing the course of development and successfully managed the period of crisis, to which contributed the German government. Since 2010, the overall performance of conglomerates was exchanged by the growing phase. The demand for premium cars notably increased and Daimler and BMW were capable of achieving quite high added value. The poor performance of Volkswagen in terms of this economic measurement is caused by a fact that VW has been expanding its business operations as well as increasing the number of brands, which fall under its umbrella. The takeover of Porsche caused an increase in operating assets and consequently in capital employed of the Group. Such change could not be obviously balanced by other factors, which influence EVA, and VW fell into negative numbers of its value added. The high figure of the negative EVA has been however decreasing. If VW continues its operations successfully as it does now, the economic value added should become positive in the near future.

Conclusion

The main problem statement of this thesis was to analyze the development of German car manufacturers, and assess whether and to what extent is the automotive sector correlated with the general economic development. All companies were analyzed in the period of 2003 to 2014 and a focus was placed on the global financial crisis that peaked during 2008-2009. Although the European mature markets such as Germany were notably struggling and German manufacturers were significantly hit by the adverse economic conditions, which proved a strong correlation of the automotive industry with the economic environment, the last couple of years have shown a substantial growth in the passenger car sales worldwide. Such development might be explained on one hand by exceptional ability of car manufacturers' management to reverse the negative development and on the top of that it shows the immense strength of these businesses, on the other hand it is connected with the global recovery of markets from the financial crisis.

The internal analysis of the conglomerates' performance focused on many areas, which were supposed to provide an overall view on the development of companies. As for VW, the Group's development was relatively poor until 2006, when the world economy started to grow and positively affected the development of the company itself. As for Daimler, DaimlerChrysler merger in 1998 caused first of all a boost in volumes of sales and an increasing profitability of the company. The adverse economic condition however influenced especially Chrysler and the analysis showed very bad performance of the company in 2003, which was slightly improving till 2006, when the company got back on track thanks to the positive development of the world economy. In 2007, Daimler's performance was really good, to which the sale of the major stake of Chrysler significantly contributed. Although BMW is the smallest car manufacturer compared to the other two e.g. by the number of employees, BMW was outperforming its competitors till the beginning of the financial crisis. BMW was however affected by the financial crisis already in 2008.

During the period of the global downturn, the financial analysis revealed following information. Conglomerates revenues decreased as a result of lower sales volumes, expenses increased, and operating profit as well as net income declined. For instance, the operating profit of VW decreased over the previous year by 70% in 2009 and net income by almost 80%. Similar development hit Daimler and BMW. In terms of the ability to generate returns on assets and equity, both indicators greatly decreased. Daimler's returns were even negative in 2009 as the company faced a loss. Such bad results were influenced by the high use of the financial leverage

as well. The presence of debt within the companies' capital structure is considerably large. Approx. 80% of the conglomerates structure is financed by debt and companies are therefore more financed by creditors than shareholders, which in time of global economic downturn is dangerous.

The interest coverage ratio together with the rating position, which is generally needed by creditors and all other debt investors, supplemented the companies' solvency analysis. Before the financial crisis, car manufacturers were rated as stable businesses with a satisfactory performance. In 2009, ratings were downgraded and the performance as well as future development was assessed as negative. Companies were however able to overcome the economic crisis soon and improved both its rating and the interest coverage ratio. At the end of 2014, all three car manufacturers fall into the A category of Standard & Poor's. BMW enjoyed the best rating in both 2013 and 2014 with its A+ rank in comparison to VW and Daimler.

Furthermore, all companies have also pursued an aggressive strategy in relation to managing the liquidity. Before 2004, conglomerates maintained higher liquidity. Due to the currency factors of EUR/USD relationship, assets declined and the liquidity indicators as well. On the other hand, conglomerates are still able to pay its short term liabilities with current assets with the exception of BMW in 2014.

When evaluating the utilization of assets, asset turnover was proved to be less important than the inventory turnover as car manufacturers make a use of a large asset base in general. The analysis revealed that inventories have been turned over six to eight times in the last few years. Considering the effect of financial crisis on the inventory turnover, the indicator had a tendency to move more into sideways.

Regarding the average collection and payment period, car manufacturers have been providing favorable sales on credit as customers generally pay in 3 months. In contrast to that, the average payment period has been around thirty to forty days. When compared to the period of financial crisis, the more significant change happened in the beginning of the examined period when the average collection indicator steeply declined to current approx. 100 days.

The analysis also exposed the growth strategy of VW and in particular the earnings per share development of this company. The share price evolution has been extremely interesting for the past few years. The EPS of all manufacturers was obviously negatively influenced in 2009 and dropped as a result of lower earnings. VW's EPS however surged in 2010. The share price of

VW was positively influenced by the company's development, by the business expansion and successful integration with Porsche. In 2014, VW's EPS reached 21.84 EUR per share, which is in comparison with BMW's EPS of 8.83 EUR per share and Daimler's EPS of 6.51 EUR per share very good. VW's shares have become extremely valuable for its shareholders.

Relatively good outlooks of operating cash flow were shown by analyzing the cash flow statements. TCF from operations significantly decreased during the financial crisis but remained stable and positive. Daimler's operating cash flow was negative in 2011, 2012 and 2014. This was caused mainly by the growth strategy of Daimler and I would evaluate the future outlook as promising in terms of generating positive cash inflow. VW's operating cash flow was also stable. It slightly declined during the financial crisis and during the period of the Porsche takeover. BMW's operating cash flow management was more satisfactory before the financial crisis. It has been however still stable and positive after the crisis.

With regard to the bankruptcy and credit scoring models, all car manufacturers scored overall poor results in relation to the Altman model. This model is however significantly influenced by ROA, which automobile manufacturers generally score low. All conglomerates achieved much better results in the Taffler model, which puts more weight into the liquidity factor, and except for the period of financial crisis companies were assessed as creditworthy. When evaluating the Kralicek's Quick test, carmakers' performance has been generally declining but stayed within the good/satisfactory middle zone.

Finally, the poor performance caused by the financial crisis was also reflected in the economic value added. Daimler and BMW reversed this trend soon and started achieving positive EVA. VW, on the other hand, invested lot into expanding its operations which led to negative values of EVA. However, I would forecast the VW's value added to turn soon into positive numbers as the negative figure has been constantly decreasing.

All German car manufacturers' outlooks look relatively good for the future. Their solid brand reputation, quality, and increasing volumes of sales may suggest that companies will continue its strong and stable performance.

To conclude, the performance of conglomerates should be also evaluated with relation to the current year 2015 based on interim reports of Daimler, VW and BMW, which all cover the period of 1st January to 30th June. Daimler's revenues, operating profit, net profit as well as EPS increased in first two quarters of 2015 when compared to the same quarters of 2014. EPS greatly

increased in the first quarter of 2015, which was in line with the DAX development. The trend however reversed and since March, the share price has been moderately decreasing. The global economy improved its performance and started growing faster in the second quarter of 2015. Despite the Greek crisis, the expansive monetary policy of the ECB, low inflation, favorable energy prices and weaker euro seem to be good for the future development of German car industry. The performance of VW also seems to be satisfactory, although net profit slightly decreased in both first quarters of 2015 when compared to the first quarters of 2014. The volume of sales increased. The performance of VW reflects mixed market development. BMW also continued to perform well in 2015. The number of vehicles sold rose in the first half of 2015 when compared to the last half-year development. Revenues also increased. The company's operating profit insignificantly decreased and the net profit slightly rose. EPS has increased as well. In general, the companies expect the international automobile markets to continue in its upward trend.

The most recent event happened on August 3rd 2015. BMW, Daimler and VW closed a deal with Nokia. The Finnish company will sell its "HERE" mapping and location services for 2.8 billion of EUR in the first half of 2016 (Santus, 2015). The likely reason for this purchase is the interest of German car manufacturers in the production of automated self-driving cars. Companies' main objective is to focus on innovations and recent trends in order to sustain its profitable development.

List of Sources

Alexander, D., Nobes, C. (2010). *Financial Accounting: An International Introduction*. Financial Times Prentice Hall.

Altman, E.I. (1968). *Financial ratios, Discriminant Analysis and the Prediction of Corporate Bankruptcy*. The Journal of Finance - Wiley Online Library. [Online] Available at: <http://onlinelibrary.wiley.com/doi/10.1111/j.1540-6261.1968.tb00843.x/abstract;jsessionid=25539E3B7D2AD293F3D866D84792FE73.f04t04> (accessed 2.1.15).

Beaver, W.H. (1966). *Financial Ratios As Predictors of Failure*. Journal of Accounting Research Vol. 4 pp. 77-111. [Online] Available at: <http://www.jstor.org/stable/2490171> (accessed 2.1.15).

Bini, L., Dainelli, F., (2011). *The informational capacity of financial performance indicators in European Annual Reports*. Maggioli Editore.

Bodie, Z., Merton, R.C. (1999). *Finance*. Pearson Education.

Brigham, E.F., Daves, P.R. (2015). *Intermediate Financial Management*. Cengage Learning, Mason, OH.

Caouette, J.B., Altman, E.I., Narayanan, P., Nimmo, R. (2008). *Managing Credit Risk: The Great Challenge for Global Financial Markets*. John Wiley & Sons.

Chatfield, M., Vangermeersch, R. (1996). *The History of Accounting: An International Encyclopedia*. Garland Science, New York.

Choi, F.D.S., Meek, G.K. (2004). *International Accounting*. Pearson Prentice Hall.

Damodaran, A. (2015). *Operating and Net Margins*. Stern Datasets. [Online] Available at: http://pages.stern.nyu.edu/~adamodar/New_Home_Page/datafile/margin.html (accessed 15.7.15).

Damodaran, A. (2015). Chapter 5 Discussion Issues and Derivations. Stern Datasets. [Online] Available at: http://pages.stern.nyu.edu/~adamodar/New_Home_Page/AppldCF/derivn/ch5deriv.html (accessed 15.5.15).

Damodaran, A. (2015). Country Default Spreads and Risk Premiums. [Online] Available at: http://pages.stern.nyu.edu/~adamodar/New_Home_Page/datafile/ctryprem.html (accessed 25.4.15).

Damodaran, A. (2013). *Musings on Markets: A tangled web of values: Enterprise value, Firm Value and Market Cap*. Aswath Damodaran's blogspot. [Online] Available at: <http://aswathdamodaran.blogspot.cz/2013/06/a-tangled-web-of-values-enterprise.html> (accessed 2.6.15).

Damodaran, A. (2011). *Musings on Markets: Risk free rates and value: Dealing with historically low risk free rates*. Aswath Damodaran's blogspot. [Online] Available at: <http://aswathdamodaran.blogspot.cz/2011/09/risk-free-rates-and-value-dealing-with.html> (accessed 2.6.15).

Damodaran, A. (2008). *What is the riskfree rate? A Search for the Basic Building Block*. Stern School of Business, New York University. [Online] Available at: <http://people.stern.nyu.edu/adamodar/pdfiles/papers/riskfreerate.pdf> (accessed 2.6.15).

Dougherty C. (2008). *VW Shares Plunge, a Day After Surge*. NYTimes. [Online] Available at: http://www.nytimes.com/2008/10/30/business/worldbusiness/30volkswagen.html?_r=1& (accessed 09.07.15).

Elliott, B., Elliott, J. (2010). *Financial Accounting and Reporting*. Financial Times Management.

Ferris, K., Petitt, B. (2013). *Valuation for Mergers and Acquisitions: An Overview*. Financial Times Press [WWW Document], n.d. URL <http://www.ftpress.com/articles/article.aspx?p=2109325&seqNum=6> (accessed 5.31.15).

Financial Reports by BizStats. *Free Motor vehicles and parts Sector Corporation* [Online] Available at: http://www.bizstats.com/corporation-industry-financials/manufacturing-31/transportation-equipment-manufacturing-336/motor-vehicles-and-parts-336105/show?asset_class_id=11&submit=Apply (accessed 11.7.15).

Frankfurt Börse BMW AG: [WWW Document], n.d. URL <http://www.boerse-frankfurt.de/en/equities/bmw+ag+st+ag+DE0005190003> (accessed 28.4.15).

Germany 10-Year Bond Historical Data - Investing.com [WWW Document], n.d. URL <http://www.investing.com/rates-bonds/germany-10-year-bond-yield-historical-data> (accessed 28.4.15).

Gibson, C.H. (2008). *Financial Reporting and Analysis: Using Financial Accounting Information*. Cengage Learning.

Gombola, M.J., Ketz, E.J. (1983). *A Note on Cash Flow and Classification Patterns of Financial Ratios*. The Accounting Review Vol. 58, No. 1, pp. 105-114. American Accounting Association. [Online] Available at: <http://www.jstor.org/stable/246645> (accessed 2.1.15).

Gräfer, H., Schneider, G., Gerenkamp, T. (2012). *Bilanzanalyse: Traditionelle Kennzahlenanalyse des Einzeljahresabschlusses. Kapitalmarktorientierte Konzernjahresabschlussanalyse. Mit zahlreichen Abbildungen, Aufgaben und Lösungen*. NWB, Deutschland.

Grünwald, R., Holečková, J. (2007). *Finanční analýza a plánování podniku*. Ekopress, Praha.

Horrigan, J.O. (1966). *The Determination of Long-Term Credit Standing with Financial Ratios*. Journal of Accounting Research Vol. 4 pp. 44-62. [Online] Available at: <http://www.jstor.org/stable/2490168> (accessed 2.1.15).

Horrigan, J.O. (1968). *A Short History of Financial Ratio Analysis*. The Accounting Review Vol. 43, No. 2, pp. 284-294. American Accounting Association. [Online] Available at: <http://www.jstor.org/stable/243765> (accessed 2.1.15).

Jorissen, A., Britton, A., Alexander, D. (2014). *International Financial Reporting and Analysis*. Cengage Learning EMEA.

Kislingerová, E. (2007). *Manažerské finance*. C.H. Beck, Praha.

Langguth, H. (2008). *Kapitalmarktorientiertes Wertmanagement: Unternehmensbewertung, Unternehmenssteuerung und Berichterstattung*. Vahlen, München.

Machek, O. (2014). *Long-term Predictive Ability of Bankruptcy Models in the Czech Republic: Evidence from 2007-2012*. Central European Business Review 3, 14–17. [Online] Available at: <http://cebr.vse.cz/cebr/article/view/120> (accessed 2.4.15).

Marek, P. (2006). *Studijní průvodce financemi podniku*. Ekopress, Praha.

- Marinič, P. (2008). *Plánování a tvorba hodnoty firmy*. Grada, Praha.
- McGee, S. (2014). *Mergers & Acquisitions: The Long-Awaited Boom Is Coming - Global Trends* - Credit Suisse. [WWW Document], n.d. URL <https://www.credit-suisse.com/de/en/news-and-expertise/news/economy/global-trends.article.html/article/pwp/news-and-expertise/2014/02/en/mergers-acquisitions-the-long-awaited-boom-is-coming.html> (accessed 28.3.15).
- Koller, T., Goedhart, M., Wessels, D. by McKinsey&Company (2010). *Valuation: Measuring and Managing the Value of Companies*. John Wiley & Sons, Hoboken, N.J.
- Niu X. (2008). *Theoretical and Practical Review of Capital Structure and its Determinants*, International Journal of Business and Management. [Online] Available at: <http://www.ccsenet.org/journal/index.php/ijbm/article/view/1640> (accessed 20.3.15).
- Palepu, K.G., Healy, P.M., Peek, E., Bernard, V.L. (2007). *Business Analysis and Valuation: IFRS edition*. Cengage Learning EMEA.
- Philippon, T. (2008). *The Future Of The Financial Industry*. EconoMonitor. [Online] Available at: <http://www.economonitor.com/blog/2008/10/the-future-of-the-financial-industry/> (accessed 2.1.15).
- Pratt, S.P., Grabowski, R.J., Brealey, R. (2014). *Cost of Capital: Applications and Examples. + Website*. John Wiley & Sons, Hoboken, NJ.
- Robinson, T.R., Henry, E., Pirie, W.L., Broihahn, M.A., Cope, A.T. (2012). *CFA Institute Investment, Volume 39: International Financial Statement Analysis*. John Wiley & Sons.
- Ryan, B. (2004). *Finance and Accounting for Business*. Cengage Learning Business Press, London.
- Santus, R. (2015). *Nokia Sells HERE To German Automakers For \$3 Billion*. Forbes [Online] Available at: <http://www.forbes.com/sites/rexsantus/2015/08/03/nokia-sells-here-to-german-automakers-for-3-billion/> (accessed 4.8.15).
- Stewart, B. (2013). *Best-Practice EVA: The Definitive Guide to Measuring and Maximizing Shareholder Value*. Wiley, Hoboken, New Jersey.

- Taffler, R.J. (1983). *The Assessment of Company Solvency and Performance Using a Statistical Model*. Accounting and Business Research 13, 295–308. [Online] Available at: <http://web.a.ebscohost.com.zdroje.vse.cz/ehost/detail/detail?vid=6&sid=ddcb51c6-2c85-4427-8238-f9fcc18be9ef%40sessionmgr4003&hid=4101&bdata=Jmxhbmc9Y3Mmc2l0ZT1laG9zdC1saXZl#db=bth&AN=13810236> (accessed 2.4.15).
- Temte, A. (2005). *Financial Statement Analysis*. Kaplan Business.
- Trade & Invest Germany, (2015). *GTAI - Automotive Industry*. Trade & Invest. [Online] Available at: <http://www.gtai.de/GTAI/Navigation/EN/Invest/Industries/Mobility/automotive.html> (accessed 20.6.15).
- Trade & Invest Germany, (2014/2015). *GTAI - Automotive Industry*. Trade & Invest. [Online] Available at: <http://www.gtai.de/GTAI/Navigation/EN/Invest/Industries/Mobility/automotive.html> (accessed 20.6.15).
- Wall, A. (1919). *Study of credit barometrics*. Federal Reserve Bulletin 3/1919 pp 229-243. [Online] Available at: https://fraser.stlouisfed.org/docs/publications/FRB/1910s/frb_031919.pdf (accessed 2.1.15).
- Watson, D., Head, A. (2009). *Corporate Finance Book: Principles and Practice*. Financial Times Prentice Hall.
- Weygandt, J.J., Kimmel, P.D., Kieso, D.E. (2012). *Financial Accounting: IFRS Edition*. John Wiley & Sons.
- Wiley-VCH with a primer by Zülch, H. (2014). *International Financial Reporting Standards (IFRS) 2014: The Official Standards Approved by the European Union*. Wiley-VCH Verlag GmbH & Co.

List of Figures

Graphs

Graph 2-1: The Revenue development in billions of euros	53
Graph 2-2: The number of employees	54
Graph 3-1: ROA.....	56
Graph 3-2: ROE	57
Graph 3-3: ROCE	61
Graph 3-4: Current ratio	63
Graph 3-5: Quick ratio	63
Graph 3-6: Debt ratio versus Equity ratio.....	64
Graph 3-7: Debt to Equity ratio	65
Graph 3-8: Interest coverage ratio	66
Graph 3-9: Asset and inventory turnover	67
Graph 3-10: Average collection and payment period in days	69
Graph 3-11: Earnings per share in €	70
Graph 3-12: The DuPont decomposition	72
Graph 3-13: Profit margin compared to Asset turnover	73
Graph 3-14: The net profit margin decomposition	75
Graph 3-15: The comparison of basic and cash returns.....	79
Graph 3-16: The graphical representation of the Altman model	83
Graph 3-17: The graphical representation of the Taffler model	84
Graph 3-18: The Quick Test of Kralicek - the overall development of conglomerates	88
Graph 3-19: The comparison of conglomerates in relation to EVA.....	103

Schemes

Scheme 1-1: Users of Financial Statements	10
Scheme 1-2: Drivers of a firm's profitability and growth	12
Scheme 1-3: Summary of Financial Ratios	19
Scheme 1-4: Common profitability ratios	20
Scheme 1-5: Managing current ratio	24
Scheme 1-6: Managing quick ratio	25
Scheme 1-7: ROE decomposition.....	31

Scheme 1-8: ROA decomposition	31
Scheme 1-9: the Altman's Z-Score.....	38
Scheme 1-10: the Taffler's Z-Score	38
Scheme 1-11: the Quick Test of Kralicek.....	39
Scheme 2-1: Basic overview of key indicators of Daimler, VW, and BMW	52
Scheme 3-1: Daimler AG - key figures of Income Statement.....	59
Scheme 3-2: Volkswagen Group - key figures of Income statement	59
Scheme 3-3: Volkswagen Group - key changes 2011-2014.....	60
Scheme 3-4: BMW AG - key figures of Income Statement	61
Scheme 3-5: Standard & Poor's long term credit rating, Rating Outlooks, 2006 - 2014.....	66
Scheme 3-6: ROE basic decomposition.....	74
Scheme 3-7: Basic overview of Daimler consolidated cash flow statement	77
Scheme 3-8: Basic overview of VW consolidated cash flow statement.....	78
Scheme 3-9: Basic overview of BMW consolidated cash flow statement	78
Scheme 3-10: Altman Z-Score of Daimler AG	81
Scheme 3-11: Altman Z-Score of Volkswagen Group.....	82
Scheme 3-12: Altman Z-Score of BMW AG	82
Scheme 3-13: Taffler Z-Score	84
Scheme 3-14: The Quick Test - Daimler AG	86
Scheme 3-15: The Quick Test - Volkswagen Group.....	87
Scheme 3-16: The Quick Test - BMW AG	87
Scheme 3-17: Operating assets of Daimler AG.....	89
Scheme 3-18: Net non-cash working capital of Daimler AG.....	90
Scheme 3-19: Capital employed of Daimler AG.....	90
Scheme 3-20: Net operating profit after tax of Daimler AG	90
Scheme 3-21: Cost of equity of Daimler AG	91
Scheme 3-22: Cost of debt of Daimler AG.....	91
Scheme 3-23: WACC of Daimler AG	93
Scheme 3-24: EVA of Daimler AG	95
Scheme 3-25: Operating assets of Volkswagen Group	95
Scheme 3-26: Net non-cash working capital of Volkswagen group	96
Scheme 3-27: Capital employed of Volkswagen Group	96
Scheme 3-28: Net operating profit after tax of Volkswagen Group.....	97
Scheme 3-29: Cost of equity of Volkswagen Group	97

Scheme 3-30: Cost of debt of Volkswagen Group	97
Scheme 3-31: WACC of Volkswagen Group	98
Scheme 3-32: EVA of Volkswagen Group	99
Scheme 3-33: Operating assets of BMW AG	99
Scheme 3-34: Net non-cash working capital of BMW AG	100
Scheme 3-35: Capital employed of BMW AG	100
Scheme 3-36: Net operating profit after tax of BMW AG	100
Scheme 3-37: Cost of equity of BMW AG	101
Scheme 3-38: Cost of debt of BMW AG	101
Scheme 3-39: WACC of BMW AG	101
Scheme 3-40: EVA of BMW AG	102

Appendices

Figure 1: Income Statement of Daimler AG.....	116
Figure 2: Balance Sheet of Daimler AG.....	117
Figure 3: Cash Flow Statement of Daimler AG	118
Figure 4: Income Statement of Volkswagen Group	119
Figure 5: Balance Sheet of Volkswagen Group.....	120
Figure 6: Cash Flow Statement of Volkswagen Group	121
Figure 7: Income Statement of BMW AG.....	122
Figure 8: Balance Sheet of BMW AG	123
Figure 9: Cash Flow Statement of BMW AG.....	124

Source: Consolidated Financial Statements

Figure 1: Income Statement of Daimler AG

Daimler AG												
Consolidated Financial Statements As Reported												
In Mio of EUR	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014
Income Statement												
Revenues	136 437.0	142 059.0	149 776.0	99 222.0	99 399.0	95 873.0	78 924.0	97 761.0	106 540.0	114 297.0	117 982.0	129 872.0
(Cost of Sales)	-109 926.0	-114 567.0	-122 894.0	-78 782.0	-75 404.0	-74 314.0	-65 567.0	-74 988.0	-81 023.0	-88 821.0	-92 457.0	-101 688.0
Gross Profit	26 511.0	27 492.0	26 882.0	20 440.0	23 995.0	21 559.0	13 357.0	22 773.0	25 517.0	25 476.0	25 525.0	28 184.0
Operating Expenses												
(Selling Expenses)	--	--	--	--	--	-9 204.0	-7 608.0	-8 861.0	-9 824.0	-10 455.0	-10 875.0	-11 534.0
(General Administrative Expenses)	--	--	--	-4 088.0	-4 023.0	-4 124.0	-3 287.0	-3 474.0	-3 855.0	-3 974.0	-3 865.0	-3 329.0
(R & D Costs)	-5 571.0	-5 658.0	-5 649.0	-3 018.0	-3 158.0	-3 055.0	-2 896.0	-3 476.0	-4 174.0	-4 179.0	-4 101.0	-4 532.0
Other Operating Income	713.0	895.0	966.0	--	--	--	693.0	971.0	1 381.0	1 507.0	1 530.0	1 759.0
(Other Operating Expense)	0.0	-145.0	--	--	--	--	-503.0	-660.0	-355.0	-291.0	-399.0	-1 160.0
Other Operating Income/(Expense) - Net	--	--	--	642.0	27.0	780.0	--	--	--	--	--	--
Selling General and Administrative Expenses	-17 772.0	-17 972.0	-18 984.0	-8 936.0	-8 956.0	--	--	--	--	--	--	--
Operating Income = EBIT *	3 881.0	4 612.0	3 215.0	5 040.0	7 885.0	5 956.0	-244.0	7 273.0	8 690.0	8 084.0	7 815.0	9 388.0
Non-Operating Expenses												
Share Of Profit/(Loss) from Investments Using Equity Method	--	--	--	-148.0	1 053.0	-998.0	72.0	-148.0	273.0	1 198.0	3 345.0	897.0
Other Financial Expense Gains/(Losses)	-2 816.0	-1 077.0	217.0	100.0	-228.0	-2 228.0	-1 341.0	149.0	-208.0	-462.0	-349.0	458.0
(Impairment of Goodwill)	--	--	-30.0	--	--	--	--	--	--	--	--	--
Turnaround Plan Chrysler Group Income/(Expense)	-469.0	--	36.0	--	--	--	--	--	--	--	--	--
Interest Income	--	--	--	--	--	--	--	825.0	955.0	233.0	212.0	145.0
(Interest Expense)	--	--	--	--	--	--	-785.0	-1 471.0	-1 261.0	-937.0	-884.0	-715.0
Interest Income - Net	--	--	--	-90.0	471.0	65.0	--	--	--	--	--	--
Profit/Loss = Income Before Taxes	596.0	3 535.0	3 438.0	4 902.0	9 181.0	2 795.0	-2 298.0	6 628.0	8 449.0	8 116.0	10 139.0	10 173.0
Income Tax (Expense)/Benefit	-979.0	-1 177.0	-513.0	-1 736.0	-4 326.0	-1 091.0	-346.0	-1 954.0	-2 420.0	-1 286.0	-1 419.0	-2 883.0
Discontinued Operations Loss/(Benefit) - Net	896.0	--	--	617.0	-870.0	-290.0	--	--	--	--	--	--
Net Profit/Loss Before Minority	513.0	2 358.0	2 925.0	3 783.0	3 985.0	1 414.0	-2 644.0	4 674.0	6 029.0	6 830.0	8 720.0	7 290.0
Net Minority/Non Controlling Interest	-35.0	108.0	-74.0	-39.0	-6.0	-66.0	4.0	-176.0	-362.0	-402.0	-1 878.0	-328.0
(Cumulative Effect of Accounting Change)	-30.0	--	-5.0	--	--	--	--	--	--	--	--	0.0
Net Income attributable to shareholders of Daimler AG	448.0	2 466.0	2 846.0	3 744.0	3 979.0	1 348.0	-2 640.0	4 498.0	5 667.0	6 428.0	6 842.0	6 962.0
Statement of Comprehensive Income for Group												
Net profit = Profit Before Minority	513.0	2 358.0	2 925.0	3 783.0	3 985.0	1 414.0	-2 644.0	4 674.0	6 029.0	6 830.0	8 720.0	7 290.0
Foreign Currency Translation Adjustments	--	--	--	--	-790.0	-32.0	267.0	1 200.0	153.0	-502.0	-1 531.0	1 800.0
Unrealized Gain (Loss) On Securities	--	--	--	--	-83.0	-274.0	247.0	-121.0	-78.0	164.0	28.0	205.0
Change In Fair Value of Derivatives	--	--	--	--	505.0	-54.0	-308.0	-484.0	-435.0	702.0	802.0	-2 433.0
Other Comprehensive Income	--	--	--	--	-425.0	-412.0	195.0	-449.0	-27.0	7.0	16.0	11.0
Pension Related Adjustments	--	--	--	--	--	--	--	--	--	-2 473.0	1 118.0	-5 378.0
Comprehensive Income Attrib to Minority Int	--	--	--	--	-75.0	-35.0	-99.0	-90.0	-398.0	-287.0	-1 859.0	xx
Total Comprehensive Income	--	--	--	--	3 117.0	607.0	-2 342.0	4 730.0	5 244.0	4 441.0	7 294.0	3 335.0

* the amounts in italics were not provided in official consolidated statements of Daimler AG, therefore they were completed by the author of the thesis

Figure 2: Balance Sheet of Daimler AG

Daimler AG												
Consolidated Financial Statements As Reported												
In Mio of EUR	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014
Balance Sheet												
<i>Current Assets</i>												
Inventories	14 948.0	16 792.0	19 139.0	18 396.0	14 086.0	16 805.0	12 845.0	14 544.0	17 081.0	17 720.0	17 349.0	20 864.0
Trade Receivables	6 081.0	6 951.0	7 595.0	7 671.0	6 361.0	6 999.0	5 285.0	7 192.0	7 849.0	7 543.0	7 803.0	8 634.0
Receivables From Financial Services	15 848.0	56 785.0	61 101.0	35 989.0	16 280.0	17 384.0	16 228.0	18 166.0	20 560.0	21 998.0	23 001.0	26 769.0
Cash and Equivalents	11 017.0	7 771.0	7 711.0	8 409.0	15 631.0	6 912.0	9 800.0	10 903.0	9 576.0	10 996.0	11 053.0	9 667.0
Marketable Debt Securities	3 268.0	3 884.0	4 936.0	7 043.0	6 583.0	4 718.0	7 460.0	1 330.0	1 334.0	4 059.0	5 400.0	5 260.0
Assets Held For Sale	--	--	--	--	922.0	--	310.0	--	--	--	--	--
Other Assets	--	--	--	2 923.0	2 368.0	2 571.0	2 352.0	4 868.0	4 718.0	5 142.0	5 835.0	5 951.0
Assets	--	12 924.0	8 731.0	--	--	--	--	--	--	--	--	--
Accounts Receivable And Other Receivables	52 638.0	--	--	--	--	--	--	--	--	--	--	--
Total Current Assets	103 800.0	105 107.0	109 213.0	80 431.0	62 231.0	55 389.0	54 280.0	57 003.0	61 118.0	67 458.0	70 441.0	77 145.0
<i>Noncurrent Assets</i>												
Goodwill	1 816.0	2 003.0	1 881.0	--	--	--	--	--	--	--	--	--
Intangible Assets	--	--	--	7 614.0	5 202.0	6 037.0	6 753.0	7 504.0	8 259.0	8 885.0	9 388.0	9 367.0
Other Intangible Assets	2 819.0	2 671.0	3 191.0	--	--	--	--	--	--	--	--	--
Property Plant & Equipment	32 917.0	34 001.0	36 739.0	32 747.0	14 650.0	16 087.0	15 965.0	17 593.0	19 180.0	20 599.0	21 779.0	23 182.0
Equipment On Operating Leases	24 385.0	26 711.0	34 238.0	36 949.0	19 638.0	18 672.0	18 532.0	19 925.0	22 811.0	26 058.0	28 160.0	33 050.0
Investments for Using the Equity Method	--	--	6 356.0	5 104.0	5 034.0	4 319.0	4 295.0	3 960.0	4 661.0	4 304.0	3 432.0	2 294.0
Receivables From Financial Services	--	--	--	41 180.0	22 933.0	25 003.0	22 250.0	22 864.0	25 007.0	27 062.0	27 769.0	34 910.0
Marketable Debt Securities	--	--	--	--	--	--	--	766.0	947.0	1 539.0	1 666.0	1 374.0
Other Financial Assets	--	--	--	--	--	--	--	3 194.0	2 957.0	3 890.0	3 523.0	3 634.0
Deferred Tax Assets	--	--	--	5 000.0	1 882.0	2 828.0	2 233.0	2 613.0	2 772.0	2 733.0	1 829.0	4 124.0
Other Assets	--	--	--	2 720.0	480.0	606.0	496.0	408.0	420.0	534.0	531.0	555.0
Long Term Investments	8 748.0	7 043.0	--	5 889.0	3 044.0	3 278.0	4 017.0	--	--	--	--	--
Total Non-Current Assets	70 685.0	72 429.0	82 405.0	137 203.0	72 863.0	76 830.0	74 541.0	78 827.0	87 014.0	95 604.0	98 077.0	112 490.0
Prepaid Expenses and Other	1 095.0	1 030.0	1 391.0	--	--	--	--	--	--	--	--	--
Deferred Income Tax Asset (Long-Term)	2 688.0	4 130.0	7 249.0	--	--	--	--	--	--	--	--	--
Assets Held for Sale	--	--	1 374.0	--	--	--	--	--	--	--	--	--
Total Assets	178 268.0	182 696.0	201 632.0	217 634.0	135 094.0	132 219.0	128 821.0	135 830.0	148 132.0	163 062.0	168 518.0	189 635.0
<i>Current Liabilities</i>												
Accounts Payable - Trade	11 583.0	12 914.0	14 591.0	13 716.0	6 939.0	6 478.0	5 622.0	7 657.0	9 515.0	8 832.0	9 086.0	10 178.0
Other Liabilities That Are ST Borrowings	--	--	--	--	--	--	--	--	--	--	--	--
Short-Term Provisions	--	--	--	15 244.0	7 820.0	7 604.0	6 820.0	8 221.0	7 829.0	7 298.0	7 136.0	8 024.0
Other Current Liabilities	8 805.0	8 707.0	9 053.0	1 518.0	1 272.0	1 057.0	1 074.0	1 545.0	1 480.0	1 336.0	1 451.0	2 007.0
Short-Term Borrowings	--	--	--	54 399.0	31 542.0	35 804.0	32 625.0	34 447.0	34 483.0	39 610.0	39 567.0	44 352.0
Deferred Income Tax Liability (Short-Term)	2 736.0	--	--	4 959.0	1 341.0	1 239.0	1 397.0	1 269.0	1 548.0	1 640.0	1 868.0	2 413.0
Liabilities Assoc With Assets Held For Sale	--	--	771.0	--	26.0	--	--	--	--	--	--	--
Total Current Liabilities	--	--	--	89 836.0	48 940.0	52 182.0	47 538.0	53 139.0	54 855.0	58 716.0	59 108.0	66 974.0
<i>Non Current Liabilities</i>												
Pension/Postretirement Liabilities	--	--	--	19 014.0	3 852.0	4 140.0	4 082.0	4 329.0	3 184.0	11 299.0	9 869.0	12 806.0
Provisions For Income Tax	--	--	--	2 492.0	1 761.0	1 582.0	2 774.0	2 539.0	2 498.0	727.0	823.0	851.0
Other Provisions For Liabilities And Charges	--	--	--	9 801.0	6 129.0	4 910.0	4 696.0	5 548.0	5 626.0	5 150.0	5 270.0	6 712.0
Long Term Debt	75 690.0	--	--	53 506.0	31 867.0	31 209.0	33 258.0	27 861.0	35 466.0	43 340.0	44 746.0	50 399.0
Other Financial Liabilities	0.0	--	--	1 732.0	1 673.0	1 942.0	2 148.0	1 883.0	1 911.0	1 750.0	1 701.0	2 644.0
Deferred Income Tax Liability Long -Term	5 331.0	6 250.0	8 298.0	499.0	673.0	1 725.0	509.0	675.0	1 081.0	268.0	892.0	1 070.0
Other Noncurrent Liabilities	--	--	--	112.0	114.0	77.0	75.0	79.0	56.0	38.0	18.0	14.0
Accrued Liabilities/Total Provisions	39 172.0	41 566.0	46 682.0	--	--	--	--	--	--	--	--	--
Borrowings	--	76 620.0	80 932.0	--	--	--	--	--	--	--	--	--
Deferred Income Taxes (Liabilities)	0.0	2 189.0	4 203.0	3 296.0	1 855.0	1 728.0	1 914.0	1 824.0	2 118.0	2 444.0	2 728.0	3 581.0
Minority Interests	470.0	909.0	653.0	--	--	--	--	--	--	--	--	--
Total Noncurrent Liabilities	--	--	--	90 452.0	47 924.0	47 313.0	49 456.0	44 738.0	51 940.0	65 016.0	66 047.0	78 077.0
Total Liabilities	143 787.0	149 155.0	165 183.0	180 288.0	96 864.0	99 495.0	96 994.0	97 877.0	106 795.0	123 732.0	125 155.0	145 051.0
<i>Stockholder Equity</i>												
Share Capital	2 633.0	2 633.0	2 647.0	2 673.0	2 766.0	2 768.0	3 045.0	3 058.0	3 060.0	3 063.0	3 069.0	3 070.0
Capital Reserve	7 915.0	8 042.0	8 221.0	8 613.0	10 221.0	10 204.0	11 864.0	11 905.0	11 895.0	12 026.0	11 850.0	11 906.0
Retained Earnings	29 085.0	30 032.0	31 688.0	23 702.0	22 656.0	19 359.0	16 795.0	21 417.0	24 669.0	22 816.0	27 761.0	28 689.0
Accumulated Other Comprehensive Income	-5 152.0	-7 166.0	-6 107.0	1 937.0	1 075.0	328.0	--	--	--	--	--	--
Treasury Stock (Amount)	--	--	--	--	--	-1 443.0	-1 443.0	-7.0	--	--	--	--
Equity Attributable To Shareholders of Daimler AG	34 011.0	32 632.0	35 796.0	36 925.0	36 718.0	31 216.0	30 261.0	36 373.0	39 624.0	37 905.0	42 680.0	43 665.0
Minority/Non Controlling Int (Stckhldrs Eqty)	470.0	909.0	653.0	421.0	1 512.0	1 508.0	1 566.0	1 580.0	1 713.0	1 425.0	683.0	919.0
Total Shareholders Equity	34 481.0	33 541.0	36 449.0	37 346.0	38 230.0	32 724.0	31 827.0	37 953.0	41 337.0	39 330.0	43 363.0	44 584.0
Total Liabilities and Shareholders Equity	178 268.0	182 696.0	201 632.0	217 634.0	135 094.0	132 219.0	128 821.0	135 830.0	148 132.0	163 062.0	168 518.0	189 635.0

Figure 3: Cash Flow Statement of Daimler AG

Daimler AG												
Consolidated Financial Statements As Reported												
In Mio of EUR	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014
Cash Flow												
<i>Cash From Operating Activities</i>												
Profit Before Income Taxes	--	--	--	--	--	--	--	--	8 449.0	8 116.0	10 139.0	10 173.0
Profit After Taxation Before Minority	--	--	--	3 783.0	3 985.0	1 414.0	-2 644.0	4 674.0	--	--	--	--
Net Profit/(Loss)	448.0	2 466.0	2 846.0	--	--	--	--	--	--	--	--	--
Depreciation And Amortization	11 417.0	11 262.0	12 653.0	12 944.0	8 010.0	5 623.0	3 264.0	3 364.0	3 575.0	4 067.0	4 368.0	4 999.0
Other Non-Cash Expense and Income	190.0	-74.0	-335.0	177.0	3 514.0	2 622.0	-563.0	434.0	-122.0	-278.0	-3 345.0	-850.0
Gains(-)/Losses on Disposal/Sale of Assets	-956.0	-281.0	--	-529.0	-1 307.0	-720.0	-34.0	-366.0	-102.0	-768.0	193.0	-1 053.0
Change in Inventories	-293.0	-1 393.0	-1 519.0	68.0	-1 751.0	-2 717.0	4 232.0	-955.0	-2 328.0	-840.0	-592.0	-2 768.0
Change in Accounts Payable	1 081.0	1 186.0	--	155.0	208.0	-644.0	-902.0	1 778.0	1 762.0	-621.0	610.0	853.0
Change in Accounts Receivable	-441.0	242.0	-443.0	-465.0	40.0	-1 511.0	4 943.0	-1 493.0	-620.0	138.0	-695.0	-606.0
Change in Other Current Assets	--	--	--	--	--	--	--	-823.0	-4 526.0	-8 071.0	-8 324.0	-10 884.0
Change In Other Assets And Liabilities	1 021.0	-648.0	820.0	-1 796.0	389.0	-862.0	2 665.0	1 931.0	-3 967.0	-741.0	2 240.0	1 032.0
Cash Paid For Taxes	--	--	--	--	--	-898.0	-358.0	-1 189.0	-2 817.0	-2 102.0	-1 309.0	-2 170.0
Chg In Inventories-Trade Recs-Other Cur Assets	--	-2 455.0	--	--	--	--	--	--	--	--	--	--
Impairments	1 960.0	--	--	--	--	--	--	--	--	--	--	--
Gain (Loss) On Sale of Investments and Mkt Sec	160.0	-275.0	--	--	--	--	--	--	--	--	--	--
Minority Interest	35.0	-108.0	74.0	--	--	--	--	--	--	--	--	--
Extraordinary Items	30.0	--	5.0	--	--	--	--	--	--	--	--	--
Net Increase In Trading Securities	71.0	-26.0	-438.0	--	--	--	--	--	--	--	--	--
Deferred Income Taxes	644.0	-593.0	-809.0	--	--	--	--	--	--	--	--	--
Equity In Earnings Of Affiliates	538.0	933.0	-103.0	--	--	--	--	--	--	--	--	--
Gain (Loss) From The Sale Of Fixed Assets	-424.0	-520.0	-1 370.0	--	--	--	--	--	--	--	--	--
Change in Accrued Expenses	1 015.0	1 344.0	170.0	--	--	--	--	--	--	--	--	--
Change In Trade Payables & Other Current Liab	--	--	802.0	--	--	--	--	--	--	--	--	--
Total Cash Flows From Operations	16 496.0	11 060.0	12 353.0	14 337.0	13 088.0	3 205.0	10 961.0	8 544.0	-696.0	-1 100.0	3 285.0	-1 274.0
<i>Cash From Investing Activities</i>												
Additions to Property, Plant & Equipment	-22 521.0	-24 578.0	-27 088.0	-21 685.0	-15 478.0	-3 559.0	-2 423.0	-3 653.0	-4 158.0	-4 827.0	-4 975.0	-4 844.0
Additions to Intangibles	--	--	--	-1 322.0	-1 354.0	-1 543.0	-1 422.0	-1 555.0	-1 718.0	-1 830.0	-1 932.0	-1 463.0
Proceeds From Sale Of Fixed & Intangible Asset	--	--	--	710.0	1 297.0	1 501.0	--	329.0	252.0	196.0	180.0	209.0
Investments In Share Property	-1 021.0	-264.0	-552.0	-473.0	-159.0	-982.0	-141.0	-163.0	-899.0	-764.0	-969.0	-172.0
Proceeds From Disposals Of Share Property	1 209.0	1 218.0	516.0	1 158.0	3 799.0	515.0	67.0	365.0	203.0	1 767.0	2 414.0	3 098.0
Acquisition Of Marketable Debt Securities	-107 917.0	-4 211.0	-10 773.0	-14 827.0	-15 030.0	-10 134.0	-17 782.0	-11 710.0	-5 478.0	-8 089.0	-6 566.0	-3 341.0
Proceeds From Sales Of Debt Securities	101 902.0	3 481.0	11 025.0	13 467.0	19 617.0	10 341.0	12 407.0	16 035.0	5 241.0	4 742.0	4 991.0	3 834.0
Other Investing Activities	-390.0	-3 456.0	2 894.0	2 071.0	23 565.0	-3 991.0	64.0	39.0	20.0	-59.0	28.0	-30.0
Disposal of Fixed Assets	12 594.0	11 209.0	12 741.0	4 991.0	4 318.0	--	280.0	--	--	--	--	--
Change In Cash Equiv Due To Consolidation Chng	-134.0	-81.0	15.0	53.0	-38.0	-951.0	--	--	--	--	--	--
Total Cash Flows From Investing	-16 278.0	-16 682.0	-11 222.0	-15 857.0	20 537.0	-8 803.0	-8 950.0	-313.0	-6 537.0	-8 864.0	-6 829.0	-2 709.0
<i>Cash from Financing Activities</i>												
Increase (Decrease) Short-Term Borrowings -Net	--	--	--	1 472.0	-9 763.0	1 525.0	-2 332.0	-28.0	2 589.0	-68.0	845.0	2 129.0
Increase In Long-Term Borrowings	16 436.0	15 013.0	14 322.0	29 107.0	16 195.0	28 825.0	24 900.0	13 828.0	26 037.0	36 904.0	37 602.0	37 354.0
Decrease In Long-Term Borrowings	-12 518.0	-13 370.0	-15 867.0	-26 940.0	-28 230.0	-27 122.0	-22 807.0	-21 482.0	-20 560.0	-22 590.0	-31 987.0	-34 650.0
Dividends Paid	-1 537.0	-1 547.0	-1 575.0	-1 553.0	-1 579.0	-2 020.0	-657.0	-93.0	-1 971.0	-2 346.0	-2 349.0	-2 407.0
Dividends Paid To Outside Equity Interests	--	--	--	--	--	--	--	--	-278.0	-387.0	-269.0	-158.0
Issuance of Common Stock	44.0	30.0	227.0	339.0	1 683.0	95.0	1 953.0	278.0	71.0	65.0	101.0	42.0
Repurchase of Common Stock	-36.0	-30.0	-27.0	-29.0	-3 510.0	-4 218.0	--	-54.0	-28.0	-25.0	-24.0	-26.0
Other Financing Activities	--	--	--	--	--	--	--	--	-18.0	-47.0	-64.0	-10.0
Increase In Short-Term Borrowings	129.0	2 453.0	1 407.0	--	--	--	--	--	--	--	--	--
Total Cash Flows From Financing	2 518.0	2 549.0	-1 513.0	2 396.0	-25 204.0	-2 915.0	1 057.0	-7 551.0	5 842.0	11 506.0	3 855.0	2 274.0
Cash and Cash Equivalents (Beg of Period)	9 100.0	10 767.0	7 381.0	8 063.0	8 409.0	15 631.0	6 912.0	9 800.0	10 903.0	9 576.0	10 996.0	11 053.0
Change in overall CF	2 736.0	-3 073.0	-382.0	876.0	8 421.0	-8 513.0	3 068.0	680.0	-1 391.0	1 542.0	311.0	-1 709.0
Effect of Exchange Rates On Cash	-1 069.0	-313.0	620.0	-530.0	-1 199.0	-206.0	-180.0	423.0	64.0	-122.0	-254.0	323.0
Cash and Cash Equivalents (End of Period)	10 767.0	7 381.0	7 619.0	8 409.0	15 631.0	6 912.0	9 800.0	10 903.0	9 576.0	10 996.0	11 053.0	9 667.0

* the amounts in italics were provided as reference items in official consolidated statements of Daimler AG, therefore they are included but do not add up to total CF from operations

Figure 4: Income Statement of Volkswagen Group

Volkswagen AG												
Consolidated Financial Statements As Reported												
In Mio of EUR	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014
Income Statement												
Revenues	87 153.0	88 963.0	95 268.0	104 875.0	108 897.0	113 808.0	105 187.0	126 875.0	159 337.0	192 676.0	197 007.0	202 458.0
(Cost of Sales)	-77 754.0	-78 440.0	-82 391.0	-91 020.0	-92 603.0	-96 612.0	-91 608.0	-105 431.0	-131 371.0	-157 522.0	-161 407.0	-165 934.0
Gross Profit	9 399.0	10 523.0	12 877.0	13 855.0	16 294.0	17 196.0	13 579.0	21 444.0	27 965.0	35 154.0	35 600.0	36 524.0
Gross Profit Financial Services Division	1 261.0	--	--	--	--	--	--	--	--	--	--	--
<i>Operating Expenses</i>												
(Distribution Expenses)	-7 846.0	-8 172.0	-8 905.0	-9 180.0	-9 274.0	-10 552.0	-10 537.0	-12 213.0	-14 582.0	-18 850.0	-19 655.0	-20 292.0
(Administrative Expenses)	-2 274.0	-2 316.0	-2 383.0	-2 312.0	-2 453.0	-2 742.0	-2 739.0	-3 287.0	-4 384.0	-6 220.0	-6 888.0	-6 841.0
Other Operating Income	4 403.0	4 461.0	4 552.0	4 714.0	5 994.0	8 770.0	7 904.0	7 648.0	9 727.0	10 484.0	9 956.0	10 298.0
(Other Operating Expenses)	-3 163.0	-2 876.0	-3 349.0	-5 068.0	-4 410.0	-6 339.0	-6 352.0	-6 450.0	-7 456.0	-9 070.0	-7 343.0	-6 992.0
Operating Income = EBIT	1 780.0	1 620.0	2 792.0	2 009.0	6 151.0	6 333.0	1 855.0	7 141.0	11 271.0	11 498.0	11 671.0	12 697.0
<i>Non-Operating Expenses</i>												
Share Of Profits and Losses from Equity Investments	511.0	255.0	78.0	373.0	734.0	910.0	701.0	1 944.0	2 174.0	13 568.0	3 588.0	3 988.0
Other Income From Investments	-32.0	--	--	--	--	--	--	--	--	--	--	--
Total Financial Gains (Losses)	-730.0	-776.0	-1 148.0	-589.0	-342.0	-635.0	-1 296.0	-91.0	5 481.0	421.0	-2 831.0	-1 891.0
Profit/Loss = Income Before Taxes	1 529.0	1 099.0	1 722.0	1 793.0	6 543.0	6 608.0	1 261.0	8 994.0	18 926.0	25 487.0	12 428.0	14 794.0
Income Tax Income/Expense	-411.0	-383.0	-602.0	162.0	-2 421.0	-1 920.0	-349.0	-1 767.0	-3 126.0	-3 606.0	-3 283.0	-3 726.0
Discontinued Operations Loss/(Benefit)	--	--	--	795.0	--	--	--	--	--	--	--	--
Net Profit/Loss Before Minority	1 118.0	716.0	1 120.0	2 750.0	4 122.0	4 688.0	911.0	7 226.0	15 799.0	21 881.0	9 145.0	11 068.0
Minority/Non Controlling Interest	-23.0	-39.0	--	-1.0	-2.0	65.0	49.0	-392.0	-391.0	-169.0	-79.0	-222.0
Net Income Attributable to Shareholders of VW AG	1 095.0	677.0	1 120.0	2 749.0	4 120.0	4 753.0	960.0	6 835.0	15 409.0	21 712.0	9 066.0	10 847.0
Statement of Comprehensive Income for Group												
Net Profit/Loss Before Minority	--	716.0	1 120.0	2 750.0	4 122.0	4 688.0	911.0	7 226.0	15 799.0	21 881.0	9 145.0	11 068.0
Item Not Reclassified to Profit or Loss	--	-787.0	-1 231.0	318.0	1 427.0	190.0	-860.0	-1 344.0	-722.0	-4 029.0	1 697.0	-5 598.0
Exchange Differences	--	-189.0	956.0	-228.0	-228.0	-1 445.0	974.0	1 978.0	-189.0	-212.0	-2 387.0	1 015.0
Cash Flow Hedges, Net Of Tax	--	49.0	-410.0	1 083.0	995.0	-373.0	-225.0	-1 136.0	-1 502.0	1 802.0	1 500.0	-3 563.0
AFS Financial Assets Net Of Tax	--	--	248.0	85.0	-375.0	-230.0	271.0	-34.0	200.0	448.0	100.0	539.0
Share of OCI of Equity Investments	--	--	--	--	47.0	-188.0	30.0	516.0	-391.0	150.0	-164.0	380.0
Deferred Taxes	--	300.0	587.0	-580.0	-740.0	145.0	216.0	736.0	--	--	--	--
Total Comprehensive Income	--	66.0	1 270.0	3 405.0	5 246.0	2 787.0	1 317.0	7 943.0	13 196.0	20 039.0	9 891.0	3 842.0

Figure 5: Balance Sheet of Volkswagen Group

Volkswagen AG												
Consolidated Financial Statements As Reported												
In Mio of EUR	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014
Balance Sheet												
<i>Current Assets</i>												
Inventories	11 670.0	11 440.0	12 643.0	12 463.0	14 031.0	17 816.0	14 124.0	17 631.0	27 551.0	28 674.0	28 653.0	31 466.0
Trade Receivables	5 497.0	5 357.0	5 638.0	5 049.0	5 691.0	5 969.0	5 692.0	6 883.0	10 479.0	10 099.0	11 133.0	11 472.0
Financial Services Receivables	39 365.0	21 109.0	22 412.0	23 426.0	24 914.0	37 103.0	27 403.0	36 769.0	38 297.0	36 911.0	38 386.0	44 398.0
Other Financial Assets	--	--	--	--	--	--	--	--	4 253.0	5 872.0	6 591.0	7 693.0
Other Receivables	5 201.0	3 862.0	4 856.0	5 572.0	6 653.0	--	5 927.0	--	--	4 823.0	5 030.0	5 080.0
Tax Receivables	--	469.0	317.0	261.0	500.0	1 024.0	762.0	482.0	623.0	761.0	729.0	1 010.0
Marketable Securities	3 148.0	2 933.0	4 017.0	5 091.0	6 615.0	3 770.0	3 330.0	5 501.0	6 146.0	7 433.0	8 492.0	10 861.0
Cash and Equivalents	7 536.0	10 221.0	7 963.0	9 367.0	10 112.0	9 474.0	20 539.0	18 670.0	18 291.0	18 488.0	23 178.0	19 123.0
Assets Held For Sale	--	--	--	--	--	1 007.0	--	--	--	--	--	--
Total Current Assets	72 417.0	55 391.0	57 846.0	61 229.0	68 516.0	76 163.0	77 776.0	85 936.0	105 640.0	113 061.0	122 192.0	131 102.0
<i>Noncurrent Assets</i>												
Intangible Assets	8 202.0	7 490.0	7 668.0	7 193.0	6 830.0	12 291.0	12 907.0	13 104.0	21 992.0	59 112.0	59 243.0	59 935.0
Property Plant & Equipment	23 852.0	23 795.0	22 884.0	20 340.0	19 338.0	23 121.0	24 444.0	25 847.0	31 916.0	39 424.0	42 389.0	46 169.0
Leasing and Rental Assets	8 906.0	8 484.0	9 882.0	7 886.0	8 179.0	9 889.0	10 288.0	11 812.0	16 626.0	20 034.0	22 259.0	27 585.0
Investment Property	--	182.0	167.0	153.0	152.0	150.0	216.0	252.0	340.0	433.0	427.0	485.0
Equity-accounted Investments	3 360.0	4 221.0	4 198.0	6 876.0	7 795.0	6 373.0	10 385.0	13 528.0	10 249.0	7 309.0	7 934.0	9 874.0
Financial Receivables	--	22 762.0	24 958.0	26 450.0	27 522.0	31 855.0	33 174.0	35 817.0	42 450.0	49 785.0	51 198.0	57 877.0
Other Long-Term Investments	607.0	293.0	336.0	410.0	548.0	583.0	543.0	640.0	3 049.0	10 301.0	10 981.0	10 181.0
Other Noncurrent Assets	--	2 298.0	2 270.0	3 028.0	3 368.0	4 150.0	4 432.0	8 208.0	15 031.0	2 223.0	2 089.0	2 122.0
Deferred Tax Assets	1 515.0	2 056.0	2 872.0	3 038.0	3 109.0	3 344.0	3 013.0	4 248.0	6 333.0	7 836.0	5 622.0	5 878.0
Prepaid Expenses and Other	277.0	--	--	--	--	--	--	--	--	--	--	--
Total Non-Current Assets	46 719.0	71 581.0	75 235.0	75 374.0	76 841.0	91 756.0	99 402.0	113 457.0	147 986.0	196 457.0	202 141.0	220 106.0
Total Assets	119 136.0	126 972.0	133 081.0	136 603.0	145 357.0	167 919.0	177 178.0	199 393.0	253 626.0	309 518.0	324 333.0	351 209.0
<i>Current Liabilities</i>												
Financial Liabilities	28 922.0	28 885.0	30 992.0	30 023.0	28 677.0	36 123.0	40 606.0	39 852.0	49 090.0	54 060.0	59 987.0	65 564.0
Trade Payables	7 822.0	7 434.0	8 476.0	8 190.0	9 099.0	9 676.0	10 225.0	12 544.0	16 325.0	17 268.0	18 024.0	19 530.0
Tax Payables	--	57.0	150.0	34.0	98.0	59.0	73.0	286.0	844.0	238.0	218.0	256.0
Other Financial Liabilities	--	6 303.0	6 205.0	6 333.0	7 084.0	8 545.0	8 237.0	10 627.0	16 097.0	4 425.0	4 526.0	7 643.0
Other Current Liabilities	6 318.0	--	--	--	--	--	--	--	--	11 111.0	11 004.0	14 143.0
Provisions For Taxes	--	--	--	--	1 828.0	1 160.0	973.0	2 077.0	2 888.0	1 721.0	2 869.0	2 791.0
Other Provisions	--	5 990.0	7 486.0	8 905.0	9 282.0	8 473.0	9 420.0	11 513.0	15 812.0	16 702.0	18 360.0	17 075.0
Put options and Compensation Rights	--	--	--	--	--	--	--	--	--	--	3 638.0	3 703.0
Liabilities Assoc With Assets Held For Sale	--	--	--	--	--	766.0	--	--	--	--	--	--
Total Current Liabilities	43 062.0	48 669.0	53 309.0	53 485.0	56 068.0	64 802.0	69 534.0	76 900.0	101 057.0	105 526.0	118 625.0	130 706.0
<i>Non Current Liabilities</i>												
Financial Liabilities	25 936.0	32 198.0	31 014.0	28 734.0	29 315.0	33 257.0	36 993.0	37 159.0	44 443.0	63 603.0	61 517.0	68 416.0
Other Financial Liabilities	--	1 355.0	1 591.0	1 735.0	2 245.0	3 235.0	3 028.0	4 742.0	6 940.0	7 072.0	6 832.0	8 192.0
Deferred Tax Liabilities	2 472.0	2 251.0	1 622.0	2 154.0	2 637.0	3 654.0	2 224.0	1 669.0	4 125.0	9 050.0	7 894.0	4 774.0
Provisions For Pensions	--	10 930.0	14 003.0	13 854.0	12 603.0	12 955.0	13 936.0	15 432.0	16 787.0	23 939.0	21 774.0	29 806.0
Provisions For Income Tax	--	2 065.0	2 257.0	2 586.0	2 275.0	3 555.0	3 946.0	3 610.0	3 721.0	4 239.0	3 674.0	3 215.0
Other Provisions	22 810.0	5 547.0	5 638.0	7 096.0	8 276.0	9 073.0	10 088.0	11 170.0	13 201.0	14 094.0	13 981.0	15 910.0
Deferred Income Tax Liability Long -Term	322.0	--	--	--	--	--	--	--	--	--	--	--
Total Noncurrent Liabilities	51 540.0	54 346.0	56 125.0	56 159.0	57 351.0	65 729.0	70 215.0	73 781.0	89 216.0	121 996.0	115 672.0	130 314.0
Total Liabilities	94 602.0	103 015.0	109 434.0	109 644.0	113 419.0	130 531.0	139 749.0	150 681.0	190 273.0	227 522.0	234 297.0	261 020.0
<i>Stockholder Equity</i>												
Subscribed Capital	1 089.0	1 089.0	1 093.0	1 004.0	1 015.0	1 024.0	1 025.0	1 191.0	1 191.0	1 191.0	1 191.0	1 218.0
Capital Reserves	4 451.0	4 451.0	4 513.0	4 942.0	5 142.0	5 351.0	5 356.0	9 326.0	9 329.0	11 509.0	12 658.0	14 616.0
Retained Earnings	18 890.0	18 325.0	17 994.0	20 958.0	25 718.0	28 636.0	28 901.0	35 461.0	47 019.0	64 982.0	71 882.0	69 116.0
Other Equity	--	--	--	--	--	--	--	--	--	--	2 004.0	5 041.0
Equity Attributable To Shareholders of VW AG	24 430.0	23 865.0	23.6	26 904.0	31 845.0	35 011.0	35 281.0	45 978.0	57 539.0	77 682.0	87 733.0	89 991.0
Minority/Non Controlling Interest	104.0	92.0	47.0	55.0	63.0	2 377.0	2 149.0	2 734.0	5 815.0	4 313.0	2 304.0	198.0
Total Shareholders Equity	24 534.0	23 957.0	23 647.0	26 959.0	31 938.0	37 388.0	37 430.0	48 712.0	63 354.0	81 995.0	90 037.0	90 189.0
Total Liabilities and Shareholders Equity	119 136.0	126 972.0	133 081.0	136 603.0	145 357.0	167 919.0	177 178.0	199 393.0	253 626.0	309 518.0	324 333.0	351 209.0

Figure 6: Cash Flow Statement of Volkswagen Group

Volkswagen AG												
Consolidated Financial Statements As Reported												
In Mio of EUR	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014
Cash Flow												
<i>Cash From Operating Activities</i>												
Profit/Loss = Income Before Taxes	1 529.0	1 099.0	1 722.0	1 793.0	6 543.0	6 608.0	1 261.0	8 994.0	18 926.0	25 487.0	12 428.0	14 794.0
Cash Paid For Taxes	-987.0	-21.0	-354.0	-888.0	-1 172.0	-2 075.0	-529.0	-1 554.0	-3 269.0	-5 056.0	-3 107.0	-4 040.0
Depreciation Amortization & Impairment	6 846.0	7 422.0	7 210.0	7 537.0	7 215.0	7 014.0	7 275.0	7 871.0	8 636.0	11 211.0	12 186.0	13 785.0
Amortization	1 546.0	1 134.0	1 438.0	1 826.0	1 843.0	1 392.0	1 586.0	2 218.0	1 697.0	1 903.0	2 464.0	3 006.0
Impairments	6.0	62.0	6.0	35.0	180.0	32.0	16.0	8.0	13.0	20.0	36.0	172.0
Disposal/Sale of Assets	76.0	-21.0	40.0	-324.0	32.0	37.0	-547.0	102.0	13.0	-32.0	-35.0	-153.0
Equity In Earnings Of Affiliates/JV-CF	-72.0	56.0	294.0	-206.0	-71.0	-219.0	-298.0	-751.0	-715.0	-11 512.0	-759.0	-990.0
Other Non-Cash Items	-442.0	-177.0	151.0	13.0	-11.0	765.0	727.0	-1 424.0	-6 462.0	-2 031.0	1 012.0	-174.0
Change in Inventories	-1 109.0	178.0	-720.0	-147.0	-1 856.0	-3 056.0	4 155.0	-2 507.0	-4 234.0	460.0	-1 021.0	-2 214.0
Change in Accounts Receivable	--	--	--	--	--	-1 333.0	465.0	-1 980.0	-2 241.0	-56.0	-1 651.0	-1 433.0
Change in Other Current Liabilities	933.0	691.0	429.0	700.0	2 244.0	815.0	260.0	4 064.0	3 077.0	-236.0	2 363.0	4 764.0
Change In Provisions	885.0	1 075.0	1 351.0	3 395.0	1 657.0	509.0	1 660.0	2 654.0	3 960.0	470.0	2 479.0	562.0
Change in Other Assets	--	--	--	--	--	-2 734.0	-2 571.0	-3 138.0	-4 090.0	-5 606.0	-7 112.0	-8 487.0
Change in Other Current Assets	-494.0	-4.0	-757.0	736.0	-942.0	-5 053.0	-719.0	-3 102.0	-6 811.0	-7 814.0	-6 688.0	-8 807.0
Total Cash Flows From Operations	8 717.0	11 494.0	10 810.0	14 470.0	15 662.0	2 702.0	12 741.0	11 455.0	8 500.0	7 209.0	12 595.0	10 784.0
<i>Cash From Investing Activities</i>												
Investing in Intangible Assets, PPE & Investments	-6 727.0	-5 550.0	-4 434.0	-3 728.0	-4 638.0	-6 896.0	-5 963.0	-5 758.0	-8 087.0	-10 493.0	-11 385.0	-12 012.0
Additions to Purchase of Intangibles	-2 160.0	-1 501.0	-1 432.0	-1 478.0	-1 446.0	-2 216.0	-1 948.0	-1 667.0	-1 666.0	-2 615.0	-4 021.0	-4 601.0
Acquisition of Business	-356.0	-2 287.0	-150.0	-2 720.0	-1 275.0	-2 597.0	-3 989.0	-2 154.0	-5 833.0	-3 550.0	-80.0	-83.0
Acquisition of other Equity Investments	--	--	--	--	--	--	--	--	-577.0	-570.0	-94.0	-195.0
Divestiture of Business	--	1 045.0	166.0	1 581.0	14.0	1.0	1 320.0	4.0	21.0	14.0	23.0	37.0
Proceeds From Sale Of Fixed & Intangible Asset	229.0	276.0	304.0	544.0	206.0	95.0	153.0	297.0	140.0	373.0	622.0	403.0
Change in Investment Securities	--	--	-820.0	-987.0	-1 742.0	2 041.0	989.0	-3 276.0	-699.0	-1 133.0	-810.0	-2 154.0
Change in Loans and Time Deposits	-2 963.0	-1 942.0	-2 950.0	-2 528.0	-2 763.0	-1 611.0	-236.0	1 506.0	-1 931.0	-1 510.0	-1 144.0	-492.0
Other Investing Activities	-3 766.0	-4 801.0	-1 948.0	-3 563.0	-3 588.0	--	--	--	--	--	--	--
Issuance of Bonds	-67.0	-319.0	-22.0	-19.0	-7.0	--	--	--	--	--	--	--
Total Cash Flows From Investing	-15 810.0	-15 079.0	-11 286.0	-12 898.0	-15 239.0	-11 183.0	-9 675.0	-11 048.0	-18 631.0	-19 482.0	-16 890.0	-19 099.0
<i>Cash from Financing Activities</i>												
Capital Contribution	--	--	66.0	340.0	211.0	218.0	4.0	4 101.0	3.0	2 046.0	3 067.0	4 932.0
Dividends Paid	-539.0	-457.0	-414.0	-451.0	-497.0	-722.0	-874.0	-798.0	-1 266.0	-1 673.0	-1 849.0	-1 962.0
Capital Transactions	59.0	-335.0	-639.0	254.0	-610.0	-362.0	-392.0	--	-335.0	-2 101.0	--	-6 535.0
Other Changes	-3.0	7.0	13.0	-23.0	-11.0	-3.0	23.0	4.0	-23.0	36.0	-21.0	15.0
Proceeds From Issuance Of Bonds	14 850.0	13 718.0	5 754.0	7 955.0	9 516.0	7 671.0	15 593.0	7 910.0	16 715.0	26 055.0	22 118.0	25 608.0
Repayment Of Bonds	-3 871.0	-5 507.0	-9 804.0	-8 401.0	-8 484.0	-8 470.0	-10 202.0	-11 941.0	-11 603.0	-16 952.0	-14 614.0	-21 748.0
Change In Other Financial Liabilities	954.0	-1 437.0	3 233.0	229.0	93.0	9 806.0	1 405.0	-104.0	4 805.0	6 432.0	285.0	4 352.0
Lease Payments	-27.0	-21.0	-3.0	-17.0	-40.0	-15.0	-23.0	-24.0	19.0	-132.0	-14.0	-17.0
Total Cash Flows From Financing	11 423.0	5 968.0	-1 794.0	-114.0	178.0	8 123.0	5 536.0	-852.0	8 316.0	13 712.0	8 973.0	4 645.0
Cash and Cash Equivalents (Beg of Period)	2 987.0	7 536.0	10 221.0	7 963.0	9 367.0	9 914.0	9 443.0	18 235.0	18 228.0	16 495.0	17 794.0	22 009.0
Change in overall CF	4 330.0	2 383.0	-2 270.0	1 458.0	601.0	-358.0	8 602.0	-445.0	-1 815.0	1 439.0	4 678.0	-3 670.0
Effect of Exchange Rates On Cash	-87.0	19.0	79.0	-59.0	-91.0	-113.0	190.0	438.0	82.0	-141.0	-462.0	294.0
Cash and Cash Equivalents (End of Period)	7 536.0	10 221.0	7 963.0	9 367.0	9 914.0	9 443.0	18 235.0	18 228.0	16 495.0	17 794.0	22 009.0	18 634.0

Figure 7: Income Statement of BMW AG

Bayerische Motoren Werke AG												
Consolidated Financial Statements as Reported												
In Mio of EUR	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014
Income Statement												
Revenues	41 525.0	44 335.0	46 656.0	48 999.0	56 018.0	53 197.0	50 681.0	60 477.0	68 821.0	76 848.0	76 058.0	80 401.0
(Cost of Sales)	32 090.0	34 040.0	35 992.0	37 660.0	43 832.0	47 148.0	45 356.0	49 545.0	54 276.0	61 354.0	60 784.0	63 396.0
Gross Profit	9 435.0	10 295.0	10 664.0	11 339.0	12 186.0	6 049.0	5 325.0	10 932.0	14 545.0	15 494.0	15 274.0	17 005.0
(Selling and Administrative Expenses)	4 446.0	4 648.0	4 762.0	4 972.0	5 254.0	5 369.0	5 040.0	5 529.0	6 177.0	7 032.0	7 255.0	7 892.0
Other Operating Income	--	--	--	--	730.0	1 428.0	808.0	766.0	782.0	829.0	841.0	877.0
(Other Operating Expenses)	--	--	--	--	530.0	1 187.0	804.0	1 058.0	1 132.0	1 016.0	874.0	872.0
(R & D Expenditures)	2 146.0	2 334.0	2 464.0	2 544.0	2 920.0	--	--	--	--	--	--	--
Other Operating Income/(Expense) - Net	510.0	461.0	355.0	227.0	--	--	--	--	--	--	--	--
Operating Income = EBIT	3 353.0	3 774.0	3 793.0	4 050.0	4 212.0	921.0	289.0	5 111.0	8 018.0	8 275.0	7 986.0	9 118.0
Result From Equity Investments	--	--	--	--	11.0	26.0	36.0	98.0	162.0	271.0	398.0	655.0
Interest and Similar Income	--	--	--	--	--	334.0	1 102.0	685.0	763.0	224.0	184.0	200.0
Interest and Similar Expenses	--	--	--	--	--	-930.0	-1 014.0	-966.0	-943.0	-375.0	-449.0	-519.0
Other Financial Result, Financial Gains (-Losses)	-148.0	-191.0	-506.0	99.0	-350.0	--	--	-75.0	-617.0	-592.0	-206.0	-747.0
(Equity Method Loss)	--	--	--	25.0	--	--	--	--	--	--	--	--
Profit/Loss = Income Before Taxes	3 205.0	3 583.0	3 287.0	4 124.0	3 873.0	351.0	413.0	4 853.0	7 383.0	7 803.0	7 913.0	8 707.0
(Income Taxes)	1 258.0	1 341.0	1 048.0	1 250.0	739.0	21.0	203.0	1 610.0	2 476.0	2 692.0	2 573.0	2 890.0
Net Profit/Loss Before Minority	1 947.0	2 242.0	2 239.0	2 874.0	3 134.0	330.0	210.0	3 243.0	4 907.0	5 111.0	5 340.0	5 817.0
(Minority/Non Controlling Interest)	--	--	--	6.0	8.0	6.0	6.0	16.0	26.0	26.0	26.0	19.0
Net Income attributable to shareholders of BMW AG	1 947.0	2 242.0	2 239.0	2 868.0	3 126.0	324.0	204.0	3 227.0	4 881.0	5 085.0	5 314.0	5 798.0
Statement of Comprehensive Income for Group												
Net Profit/Loss Before Minority	--	2 242.0	2 239.0	2 874.0	3 134.0	330.0	210.0	3 243.0	4 907.0	5 111.0	5 340.0	5 817.0
Pension Related Adjustments	--	--	--	--	--	161.0	-1 198.0	-277.0	-586.0	-1 914.0	1 308.0	-2 298.0
Gain (Loss) On Available-for-Sale Securities	--	--	--	--	--	-7.0	4.0	-16.0	-72.0	214.0	8.0	40.0
Financial Instruments Used For Hedging Purposes	--	--	--	--	--	-624.0	295.0	-526.0	-801.0	1 302.0	1 357.0	-2 194.0
OCI From Equity Accounted Investments	--	--	--	--	--	--	--	21.0	-41.0	111.0	-7.0	-48.0
Foreign Currency Translation Adjustments	--	--	--	--	--	-807.0	318.0	666.0	168.0	-123.0	-635.0	764.0
Income Tax Exp Related to Comprehensive Income	--	--	--	--	--	188.0	190.0	265.0	421.0	27.0	-779.0	1 438.0
Comprehensive Income Attrib to Minority Int	--	--	--	--	--	-5.0	-6.0	-16.0	-26.0	-26.0	-26.0	-19.0
Total Comprehensive Income	--	--	--	--	--	-764.0	-187.0	3 360.0	3 970.0	4 702.0	6 566.0	3 500.0

Figure 8: Balance Sheet of BMW AG

Bayerische Motoren Werke AG												
Consolidated Financial Statements as Reported												
In Mio of EUR	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014
Balance Sheet												
<i>Current Assets</i>												
Inventories	5 693.0	6 467.0	6 527.0	6 794.0	7 349.0	7 290.0	6 555.0	7 766.0	9 638.0	9 725.0	9 585.0	11 089.0
Trade Receivables	2 257.0	1 868.0	2 135.0	2 258.0	2 672.0	2 305.0	1 857.0	2 329.0	3 286.0	2 543.0	2 449.0	2 153.0
Receivables from Sales Financing	29 134.0	9 317.0	11 851.0	12 503.0	13 996.0	15 871.0	17 116.0	18 239.0	20 014.0	20 605.0	21 501.0	23 586.0
Financial Assets	1 857.0	4 517.0	2 654.0	3 134.0	3 622.0	3 306.0	3 215.0	3 262.0	3 751.0	4 612.0	5 559.0	5 384.0
Current Tax	--	--	--	246.0	237.0	602.0	950.0	1 166.0	1 194.0	966.0	1 151.0	1 906.0
Other Assets	--	2 224.0	1 955.0	2 272.0	2 109.0	1 842.0	2 484.0	2 957.0	3 345.0	3 664.0	4 265.0	5 038.0
Cash and Cash Equivalents	1 659.0	2 128.0	1 621.0	1 336.0	2 393.0	7 454.0	7 767.0	7 432.0	7 776.0	8 370.0	7 664.0	7 688.0
Assets Held For Sale	--	--	--	--	--	--	--	--	--	45.0	--	--
Prepaid Expenses and Other	--	--	--	--	--	--	--	--	--	--	--	--
Deferred Income Tax Asset (Short-Term)	--	291.0	267.0	--	--	--	--	--	--	--	--	--
Total Current Assets	40 600.0	26 812.0	27 010.0	28 543.0	32 378.0	38 670.0	39 944.0	43 151.0	49 004.0	50 530.0	52 174.0	56 844.0
<i>Noncurrent Assets</i>												
Intangible Assets	3 200.0	3 758.0	4 593.0	5 312.0	5 670.0	5 641.0	5 379.0	5 031.0	5 238.0	5 207.0	6 179.0	6 499.0
Property Plant & Equipment	9 708.0	10 724.0	11 087.0	11 285.0	11 108.0	11 292.0	11 385.0	11 427.0	11 685.0	13 341.0	15 113.0	17 182.0
Leased Products	6 697.0	7 502.0	11 375.0	13 642.0	17 013.0	19 524.0	17 973.0	19 088.0	23 112.0	24 468.0	25 914.0	30 165.0
Investments for Using the Equity Method	--	65.0	94.0	60.0	63.0	--	--	212.0	302.0	514.0	652.0	1 088.0
Other Investments	--	704.0	1 178.0	401.0	209.0	2 130.0	1 751.0	177.0	561.0	548.0	553.0	408.0
Receivables From Sales Financing	--	15 737.0	17 202.0	17 865.0	20 248.0	--	--	27 126.0	29 331.0	32 309.0	32 616.0	37 438.0
Financial Assets	607.0	1 236.0	642.0	816.0	1 173.0	22 192.0	23 478.0	1 867.0	1 702.0	2 148.0	2 593.0	2 024.0
Deferred Tax	--	515.0	772.0	755.0	720.0	866.0	1 266.0	1 393.0	1 926.0	1 967.0	1 620.0	2 061.0
Investment In Affiliates/Joint Ventures	--	--	--	--	--	111.0	137.0	--	--	--	--	--
Other Assets	--	581.0	613.0	378.0	415.0	660.0	640.0	692.0	568.0	803.0	954.0	1 094.0
Total Non-Current Assets	20 212.0	40 822.0	47 556.0	50 514.0	56 619.0	62 416.0	62 009.0	67 013.0	74 425.0	81 305.0	86 194.0	97 959.0
Total Assets	61 475.0	67 634.0	74 566.0	79 057.0	88 997.0	101 086.0	101 953.0	110 164.0	123 429.0	131 835.0	138 368.0	154 803.0
<i>Current Liabilities</i>												
Other Provisions	--	2 662.0	2 663.0	2 671.0	2 826.0	2 125.0	2 058.0	2 826.0	3 104.0	3 246.0	3 411.0	4 522.0
Current Tax	--	--	--	567.0	808.0	633.0	836.0	1 198.0	1 363.0	1 482.0	1 237.0	1 590.0
Financial Liabilities	27 449.0	15 264.0	17 838.0	17 656.0	22 493.0	29 887.0	26 934.0	26 520.0	30 380.0	30 412.0	30 854.0	37 482.0
Trade Payables	3 143.0	3 376.0	3 544.0	3 737.0	3 551.0	2 562.0	3 122.0	4 351.0	5 340.0	6 433.0	7 475.0	7 709.0
Other Liabilities	--	2 784.0	3 577.0	3 924.0	4 106.0	4 080.0	3 969.0	5 239.0	7 026.0	6 792.0	7 066.0	7 775.0
Liabilities Assoc With Assets Held For Sale	--	--	--	--	--	--	--	--	--	30.0	--	--
Liabilities	2 634.0	--	--	--	--	--	--	--	--	--	--	--
Deferred Income Tax Liability (Short-Term)	--	497.0	462.0	--	--	--	--	--	--	--	--	--
Total Current Liabilities	33 226.0	24 583.0	28 084.0	28 555.0	33 784.0	39 287.0	36 919.0	40 134.0	47 213.0	48 395.0	50 043.0	59 078.0
<i>Non Current Liabilities</i>												
Pension Provisions	2 430.0	4 224.0	5 255.0	5 017.0	4 627.0	3 314.0	2 972.0	1 563.0	2 183.0	3 813.0	2 303.0	4 604.0
Other Provisions	--	2 991.0	3 243.0	2 865.0	2 676.0	2 757.0	2 706.0	2 721.0	3 149.0	3 441.0	3 772.0	4 268.0
Deferred Tax	847.0	2 277.0	2 522.0	2 758.0	2 714.0	--	--	3 400.0	3 273.0	3 081.0	3 554.0	1 974.0
Financial Liabilities	--	15 667.0	16 830.0	18 800.0	21 428.0	30 497.0	34 391.0	35 833.0	37 597.0	39 095.0	39 450.0	43 167.0
Other Liabilities	--	1 358.0	1 659.0	1 932.0	2 024.0	2 201.0	2 281.0	2 583.0	2 911.0	3 404.0	3 603.0	4 275.0
Long-Term Accounts Payable	--	--	--	--	--	--	--	--	--	9.0	--	--
Deferred Tax Liabilities (Long-Term)	2 501.0	--	--	--	--	2 757.0	2 769.0	--	--	--	--	--
Total Provisions	6 321.0	--	--	--	--	--	--	--	--	--	--	--
Total Noncurrent Liabilities	8 822.0	26 517.0	29 509.0	31 372.0	33 469.0	41 526.0	45 119.0	46 100.0	49 113.0	52 834.0	52 682.0	58 288.0
Total Liabilities	45 325.0	51 100.0	57 593.0	59 927.0	67 253.0	80 813.0	82 038.0	86 234.0	96 326.0	101 326.0	102 725.0	117 366.0
<i>Stockholder Equity</i>												
Subscribed Capital	674.0	674.0	674.0	654.0	654.0	654.0	655.0	655.0	655.0	656.0	656.0	656.0
Capital Reserves	1 971.0	1 971.0	1 971.0	1 911.0	1 911.0	1 911.0	1 921.0	1 939.0	1 955.0	1 973.0	1 990.0	2 005.0
Revenue Reserves	12 671.0	14 531.0	16 351.0	18 121.0	20 789.0	20 419.0	20 426.0	22 492.0	26 102.0	28 544.0	33 167.0	35 621.0
Accumulated Other Equity (OCI)	--	-642.0	-1 517.0	-1 560.0	-1 621.0	-2 709.0	-3 100.0	-1 182.0	-1 674.0	-674.0	-358.0	-1 062.0
Treasury Stock (Amount)	--	--	-506.0	--	--	-10.0	--	--	--	--	--	--
Other Equity	834.0	--	--	--	--	--	--	--	--	--	--	--
Equity Attributable To Shareholders of BMW AG	16 150.0	16 534.0	16 973.0	19 126.0	21 733.0	20 265.0	19 902.0	23 904.0	27 038.0	30 499.0	35 455.0	37 220.0
Minority/Non Controlling Int	--	--	--	4.0	11.0	8.0	13.0	26.0	65.0	107.0	188.0	217.0
Total Shareholders Equity	16 150.0	16 534.0	16 973.0	19 130.0	21 744.0	20 273.0	19 915.0	23 930.0	27 103.0	30 606.0	35 643.0	37 437.0
Total Liabilities and Shareholders Equity	61 475.0	67 634.0	74 566.0	79 057.0	88 997.0	101 086.0	101 953.0	110 164.0	123 429.0	131 835.0	138 368.0	154 803.0

Figure 9: Cash Flow Statement of BMW AG

Bayerische Motoren Werke AG												
Consolidated Financial Statements as Reported												
In Mio of EUR	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014
Cash Flow												
<i>Cash From Operating Activities</i>												
Net Earnings Before Minority Interest	--	--	--	2 874.0	3 134.0	330.0	210.0	3 243.0	4 907.0	5 111.0	5 340.0	5 817.0
Net Income	1 947.0	2 242.0	2 239.0	--	--	--	--	--	--	--	--	--
Depreciation And Amortization	4 901.0	5 544.0	6 466.0	7 148.0	8 387.0	10 439.0	9 079.0	3 861.0	3 654.0	3 716.0	3 830.0	4 323.0
Change In Provisions	1 155.0	746.0	764.0	-346.0	221.0	-332.0	1.0	911.0	779.0	443.0	479.0	1 103.0
Change In Leased Products	--	--	--	--	--	--	--	888.0	-379.0	-1 421.0	-2 048.0	-2 720.0
Rover Disengagement	49.0	--	--	--	--	--	--	--	--	--	--	--
Deferred Income Taxes	853.0	467.0	236.0	242.0	-256.0	-51.0	-95.0	348.0	-338.0	-216.0	138.0	116.0
Income Tax Expense	--	--	--	993.0	1 002.0	75.0	338.0	1 430.0	2 868.0	2 908.0	2 435.0	2 774.0
Interest Income	--	--	--	--	--	-169.0	-113.0	42.0	1.0	-4.0	126.0	127.0
Gain/Loss from Disposal/Sale of Assets	-4.0	19.0	-99.0	-68.0	-181.0	-21.0	-35.0	5.0	--	-16.0	-22.0	-63.0
Result From Equity Accounted Investments	13.0	-4.0	-14.0	25.0	-11.0	-26.0	-36.0	-98.0	-162.0	-271.0	-398.0	-655.0
Other Non-Cash Items	-144.0	75.0	176.0	-329.0	111.0	424.0	17.0	-694.0	148.0	407.0	-551.0	331.0
Change in Inventories	-640.0	-865.0	187.0	-265.0	-700.0	37.0	855.0	-1 170.0	-1 715.0	-108.0	-192.0	-971.0
Change in Accounts Payable	--	--	--	--	--	-972.0	441.0	1 194.0	900.0	1 119.0	1 153.0	41.0
Change in Accounts Receivable	-877.0	218.0	-239.0	-611.0	10.0	385.0	506.0	-427.0	-800.0	744.0	22.0	379.0
Change in Other Current Liabilities	618.0	869.0	975.0	1 050.0	894.0	-548.0	129.0	572.0	--	--	--	--
Change In Other Assets And Liabilities	--	--	--	--	--	1 509.0	-1 023.0	--	1 175.0	-1 065.0	453.0	323.0
Change in Other Assets	--	--	--	--	--	--	--	-4 616.0	-2 837.0	-3 988.0	-4 501.0	-3 898.0
Cash Paid For Taxes	--	--	--	-733.0	-817.0	-448.0	-349.0	-1 318.0	-2 701.0	-2 462.0	-2 787.0	-4 252.0
Interest Received	--	--	--	--	--	240.0	346.0	148.0	213.0	179.0	137.0	137.0
Total Cash Flows From Operations	7 871.0	9 311.0	10 691.0	9 980.0	11 794.0	10 872.0	10 271.0	4 319.0	5 713.0	5 076.0	3 614.0	2 912.0
<i>Cash From Investing Activities</i>												
Purchases of Investments	-148.0	-43.0	-74.0	-29.0	-44.0	-142.0	-53.0	-80.0	-543.0	-171.0	-90.0	-99.0
Other Investing Activities	-3 347.0	-7 821.0	-8 995.0	-9 500.0	-13 104.0	-14 392.0	-5 700.0	--	--	--	--	--
Acquisition of Business	--	--	--	--	--	--	--	0.0	-595.0	--	--	--
Proceeds From Short-Term Investments	--	315.0	381.0	2 677.0	2 577.0	5 299.0	620.0	798.0	1 317.0	1 090.0	3 250.0	4 072.0
Additions To Fixed And Intangible Assets	-4 115.0	-4 243.0	-3 875.0	-4 313.0	-4 267.0	-4 204.0	-3 471.0	-3 263.0	-3 679.0	-5 236.0	-6 669.0	-6 099.0
Sales (Purchases) of ST Investments - Net	-673.0	--	--	--	--	--	--	--	--	--	--	--
Proceeds From Investments	60.0	--	13.0	110.0	16.0	2.0	15.0	23.0	21.0	107.0	137.0	190.0
Proceeds From Sale Of Fixed & Intangible Asset	119.0	42.0	42.0	39.0	272.0	177.0	169.0	55.0	53.0	42.0	22.0	36.0
Divestiture of Business	-49.0	34.0	1 000.0	--	--	--	--	--	--	--	--	--
Dividends Received	--	--	--	--	--	--	--	--	--	--	--	--
Purchases of Short-Term Investments	--	-241.0	-455.0	-2 654.0	-2 698.0	-5 392.0	-2 908.0	-2 723.0	-2 073.0	-1 265.0	-3 631.0	-4 216.0
Capital Expenditures	-5 785.0	--	--	--	--	--	--	--	--	--	--	--
Disposal of Fixed Assets	2 707.0	--	--	--	--	--	--	--	--	--	--	--
Total Cash Flows From Investing	-11 231.0	-11 957.0	-11 963.0	-13 670.0	-17 248.0	-18 652.0	-11 328.0	-5 190.0	-5 499.0	-5 433.0	-6 981.0	-6 116.0
<i>Cash from Financing Activities</i>												
Repurchase of Common Stock	--	--	-506.0	-253.0	--	-10.0	--	--	--	--	--	--
Other Financing Activities	1 364.0	1 451.0	-214.0	--	--	--	7.0	18.0	16.0	19.0	17.0	15.0
Dividends Paid	-351.0	-392.0	-419.0	-419.0	-458.0	-694.0	-197.0	-197.0	-852.0	-1 516.0	-1 653.0	-1 715.0
Interest Paid	--	--	--	--	--	-312.0	-224.0	-223.0	-82.0	-102.0	-122.0	-133.0
Sale of Treasury Stock	--	--	--	--	--	--	6.0	--	--	--	--	0.0
Increase (Decrease) Short-Term Borrowings -Net	--	--	--	1 610.0	5 129.0	9 041.0	-1 562.0	-260.0	439.0	-628.0	1 091.0	1 120.0
Increase In Long-Term Borrowings	5 669.0	4 339.0	5 819.0	6 876.0	6 038.0	9 959.0	9 762.0	4 578.0	5 899.0	15 404.0	15 608.0	16 792.0
Decrease In Long-Term Borrowings	-3 483.0	-3 126.0	-3 432.0	-4 491.0	-4 152.0	-5 080.0	-6 440.0	-3 406.0	-5 333.0	-12 225.0	-12 238.0	-12 946.0
Issuance of Common Stock	17.0	--	--	--	--	--	--	--	--	--	--	0.0
Decrease In St Borrowings	-448.0	--	-549.0	--	--	--	--	--	--	--	--	0.0
Increase In Short-Term Borrowings	--	865.0	--	--	--	--	--	--	--	--	--	0.0
Total Cash Flows From Financing	2 768.0	3 137.0	699.0	3 323.0	6 557.0	12 904.0	1 352.0	510.0	87.0	952.0	2 703.0	3 133.0
Cash and Cash Equivalents (Beg of Period)	2 333.0	1 659.0	2 128.0	1 621.0	1 336.0	2 393.0	7 454.0	7 767.0	7 432.0	7 776.0	8 370.0	7 671.0
Change in overall CF	-592.0	491.0	-573.0	-367.0	1 103.0	5 124.0	295.0	-361.0	301.0	595.0	-664.0	-71.0
Effect of Exchange Rates On Cash	-82.0	-22.0	66.0	82.0	-46.0	-63.0	18.0	26.0	43.0	-1.0	-42.0	88.0
Cash and Cash Equivalents (End of Period)	1 659.0	2 128.0	1 621.0	1 336.0	2 393.0	7 454.0	7 767.0	7 432.0	7 776.0	8 370.0	7 664.0	7 688.0